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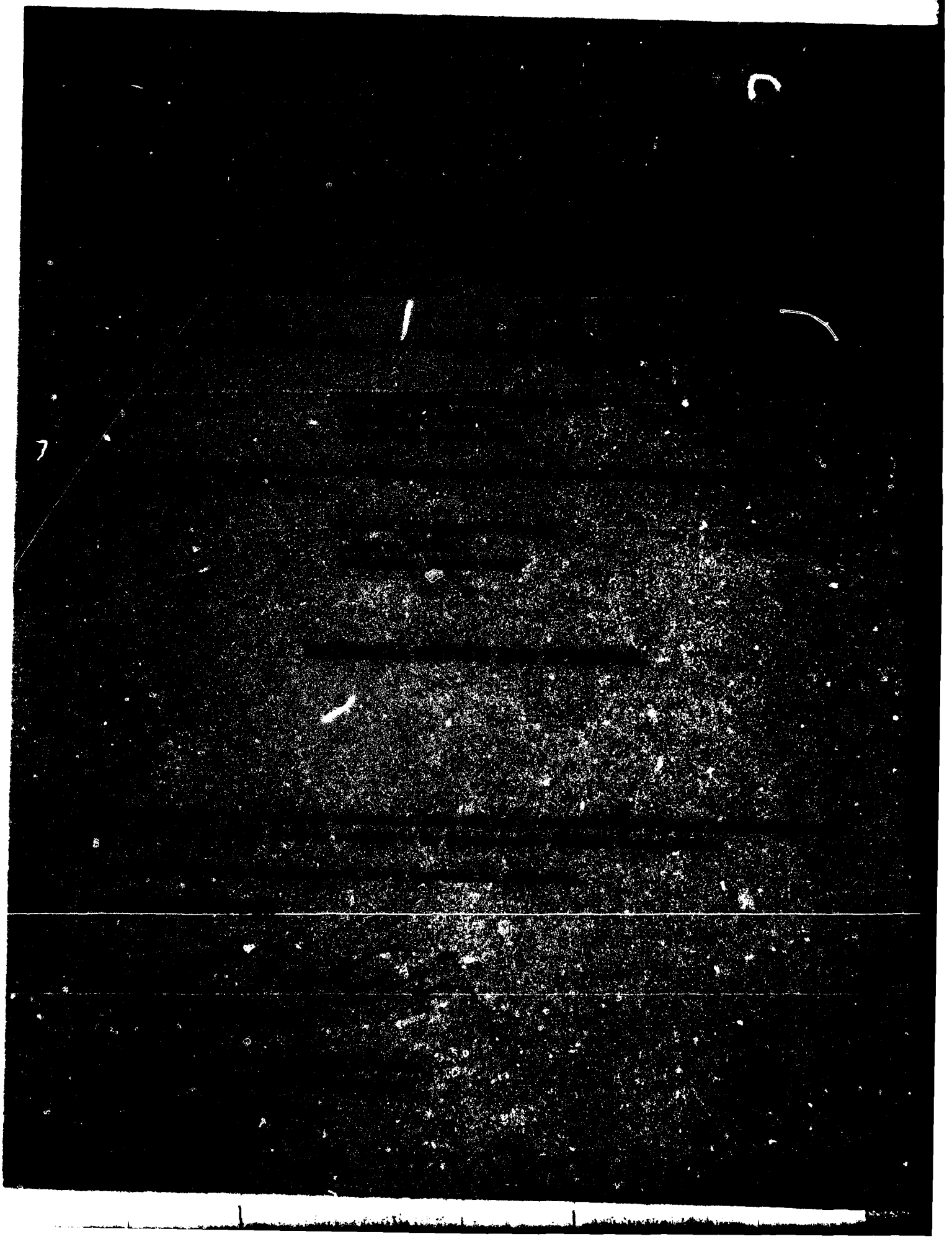

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The AF32A-18 noise suppressor is made by the General Acoustics Corporation for acoustical suppression of the F-5 aircraft. This report provides measured and extrapolated data defining the bio-acoustic environments produced by this aircraft operating in this suppressor for three engine power configurations. Near-field data are reported for two locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech inter-

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ference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723107, Technology to Define and Assess Environmental Quality of Noise From Air Force Operations.

The author gratefully acknowledges Mr. John Cole and Mr. Robert Powell for their assistance in preparing this report, Mr. Jerry Speakman and Capt. Richard Gorman for their assistance in acquiring the raw data, Mr. Keith Kettler, Mr. Henry Mohlman and Mr. Fred Lampley of the University of Dayton for assistance in the mechanics of data processing, and Mrs. Peggy Massie for assistance in typing this report.

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INTRODUCTION

The F-5E is a twin engine, single-place, supersonic fighter powered by General Electric J85-GE-21 engines. The aircraft is manufactured by Northrop and code named the International Fighter. The AF32A-18 noise suppressor was built by General Acoustics Corporation to provide noise level reduction for all F-5 aircraft during ground runup operations. This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft in this suppressor system during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the F-5 aircraft operating in the AF32A-18 noise suppressor.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15°C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure), to derive comparable data for other meteorological conditions. *Refer to Volumes 1 and 2* (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

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1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook Volume 1: Organization, Content and Application*, AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.

2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise*, AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975.

NEAR-FIELD NOISE

MEASUREMENTS

AMRL acquired near-field noise data on the AF32A-18 noise suppressor system during ground runup operations of the F-5E aircraft. For these tests the aircraft was located in the AF32A-18 noise suppressor at Nellis AFB with no significant reflecting surfaces in the vicinity except the ground plane. Table 1 gives the surface meteorological conditions and the four engine power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. He recorded all the noise samples on magnetic tape. During analysis of each sample, he determined the one-third octave band root-mean-square sound pressure using a 4- or 8-second integration time to derive a power-averaged level for each location. Figure 1 shows the two near-field locations where ground crew are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations are difficult in the near-field since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numerical/alphabetic designators used on the data pages in this report to identify the measurement locations and test conditions. For example, the designator 1/A means ground crew location 1 and test condition A.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the F-5E aircraft in the AF32A-18 noise suppressor at the two ground crew locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures given in Table 3, which are widely used to assess the effects of noise on personnel and their performance.

All near-field data are the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short sound propagation distances involved.

TABLE 1

MEASUREMENT LOCATIONS AND TEST CONDITIONS FOR NEAR-FIELD NOISE MEASUREMENTS

F-5 Aircraft Suppressor Ground Runup, Nellis AFB Survey
Test #77-746-001, 7 September 1977

Ground Crew Location

1.	Trim Check Position
2.	Leak Check Position

Aircraft Engine Operation

A.	Idle Power (50% RPM)
B.	80% RPM
C.	Military Power (101% RPM)
D.	Afterburner Power

Meteorology

Temperature	34 C
Bar Pressure	.712 M Hg
Rel Humidity	21 %
Wind — Speed	Calm
— Direction	Calm

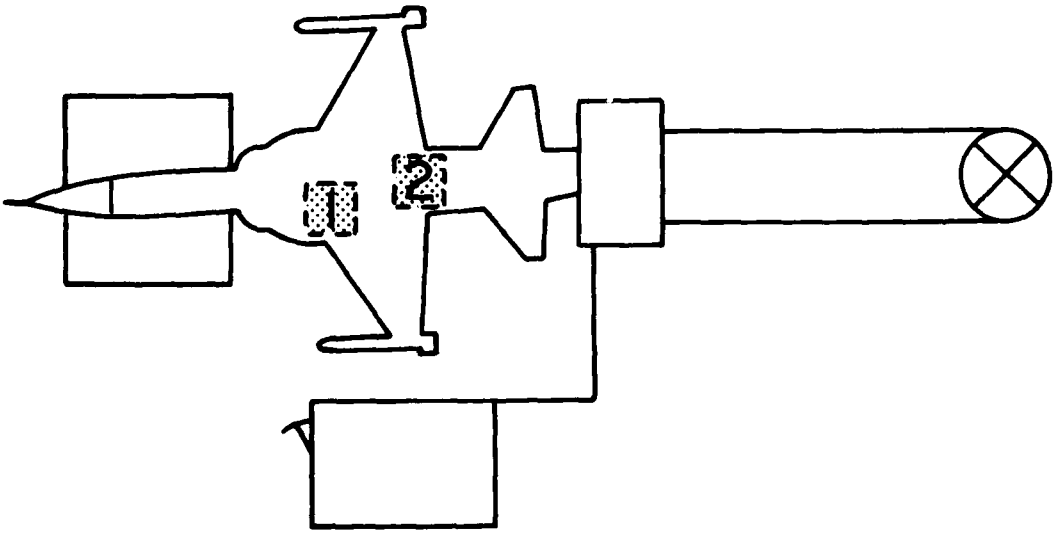

Figure 1. Near-Field Measurement Locations

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired the near and far-field data during a 1- 2-hour test period, thus keeping similar meteorological conditions. Figure 2 shows the aircraft in the suppressor and its orientation relative to 19 microphone measurement sites on a semicircle. The center of the 100 meter radius semicircle used in surveying the AF32A-18 suppressor was on the ground directly below the center of the exhaust stack.

Table 4 provides cockpit readouts of engine characteristics (% RPM, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All 19 microphone measurement sites are in the acoustic far-field of the source where the sound wave-fronts spherically diverge and the noise source may be regarded as a point source.

A portable microphone/tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 3 which provides a compact summary of the far-field noise characteristics of the F-5E aircraft operating in the AF32A-18 noise suppressor in a standard format.

Estimates of the noise levels for intermediate power settings (e.g., 90% RPM) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

Figures 4 through 10 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low.

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

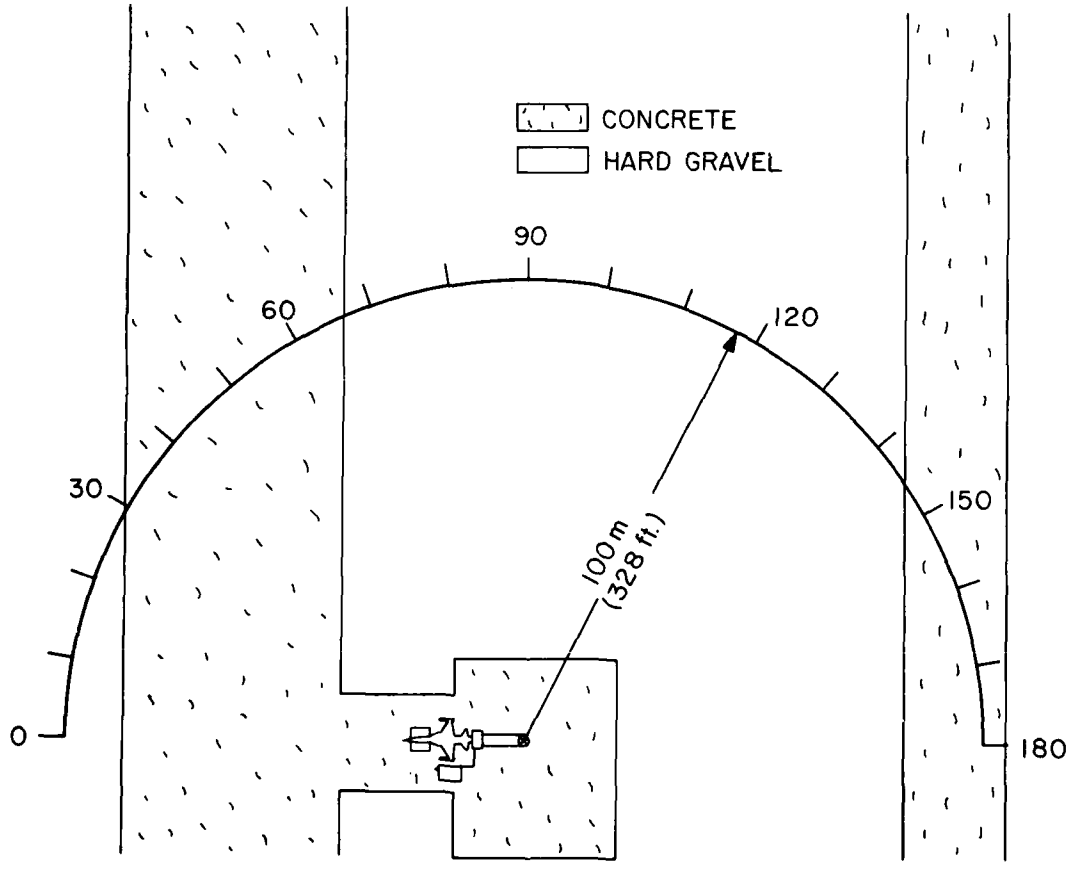

Figure 2. Far-Field Measurement Locations at Nellis AFB, NV

TABLE: 2 MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND

IDENTIFICATION:
OMEGA 3.2
TEST 77-746-001
RUN 01

14 SEP 78

PAGE F1

NOISE SOURCE/SUBJECT:
F-5 AIRCRAFT IN THE
AF/32A-18 SUPPRESSOR
GROUND CREW
NEAR-FIELD NOISE LEVELS

OPERATION:

FREQ (HZ)	LOCATION/CONDITION 1/A	2/A	1/B	2/B	1/C	2/C	1/D	2/D
25	78	80	89	90	97	99	104	104
31.5	78	81	87	92	98	100	101	102
40	87	90	89	93	102	107	107	109
50	90	92	91	94	104	107	106	111
63	85	88	92	95	100	107	105	111
80	81	85	96	101	102	109	105	113
100	83	85	93	101	101	106	104	109
125	89	86	94	97	103	102	105	103
160	85	87	93	95	101	106	104	107
200	86	90	93	99	105	107	105	108
250	88	89	94	98	104	103	103	107
315	90	91	96	99	105	106	105	106
400	94	101	97	97	106	105	106	107
500	90	93	94	94	106	107	108	108
630	89	87	93	93	104	107	106	107
800	90	89	94	98	106	107	108	108
1000	92	89	92	96	107	108	110	111
1250	93	96	93	94	107	110	108	110
1600	96	94	98	96	106	110	109	110
2000	94	93	100	97	111	115	108	109
2500	94	97	102	97	109	107	112	108
3150	96	91	101	95	109	106	112	107
4000	100	92	100	100	108	104	112	104
5000	95	90	102	99	103	100	107	101
6300	93	84	102	95	109	103	112	103
8000	92	81	98	91	108	103	111	103
10000	89	76	100	92	101	100	106	101
OVERALL	106	106	111	111	120	121	122	122

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 2 MEASURED SOUND PRESSURE LEVEL (DB) OCTAVE BAND

IDENTIFICATION: OMEGA 3.2 TEST 77-746-001 RUN 01 14 SEP 78 PAGE J1

NOISE SOURCE/SUBJECT: F-5 AIRCRAFT IN THE AF/32A-18 SUPPRESSOR GROUND CREW NEAR-FIELD NOISE LEVELS

OPERATION:

FREQ (HZ)	LOCATION/CONDITION 1/A	2/A	1/B	2/B	1/C	2/C	1/D	2/D
31.5	88	91	93	97	104	108	109	111
63	91	94	98	103	107	113	110	116
125	91	91	98	103	107	110	109	112
250	93	95	99	103	109	110	109	112
500	96	102	100	100	110	111	112	112
1000	97	97	98	101	111	113	113	115
2000	99	100	105	101	114	117	115	114
4000	102	96	106	103	112	109	116	109
8000	96	86	105	97	112	107	115	107
OVERALL	106	106	111	111	120	12i	122	122

TABLE: MEASURES OF HUMAN NOISE EXPOSURE

3

IDENTIFICATION:
OMEGA 3.2
TEST 77-746-001
RUN 01
14 SEP 78
PAGE H1

NOISE SOURCE/SUBJECT:
F-5 AIRCRAFT IN THE
AF/32A-18 SUPPRESSOR
GROUND CREW
NEAR-FIELD NOISE LEVELS

OPERATION:

	LOCATION/CONDITION							
	1/A	2/A	1/B	2/B	1/C	2/C	1/D	2/D
HAZARD/PROTECTION								
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR								
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR								
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)								
NO PROTECTION								
OASLC	106	106	111	110	119	121	121	122
OASLA	106	105	111	108	119	120	121	119
T	11	13	4.5	8	P	P	P	P
MINIMUM QPL EAR MUFFS								
OASLA*	80	81	86	87	94	95	96	97
T	960	807	339	285	85	71	60	50
AMERICAN OPTICAL 1700 EAR MUFFS								
OASLA*	74	76	80	82	89	91	91	93
T	960	960	960	679	202	143	143	101
V-51R EAR PLUGS								
OASLA*	78	79	82	82	91	92	93	93
T	960	960	679	679	143	120	101	101
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS								
OASLA*	64	64	69	68	78	79	80	80
T	960	960	960	960	960	960	960	960
H-133 GROUND COMMUNICATION UNIT								
OASLA*	78	77	83	81	92	93	94	93
T	960	960	571	807	120	101	85	101
COMMUNICATION								
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)								
PSIL	97	99	101	101	112	114	113	113
ANNOYANCE								
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)								
TONE CORRECTION (C IN DB)								
PNLT	123	120	126	125	133	136	137	133
C	2	2	1	1	1	2	1	0

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.
P ADDITIONAL EAR PROTECTION REQUIRED.

TABLE 4

TEST CONDITIONS FOR FAR-FIELD NOISE MEASUREMENTS

F-5E Aircraft In The AF32A-18 Noise Suppressor, Ground Runup
Nellis AFB NV

Aircraft Engine Operation

80% RPM	One Engine 80 % RPM 400 C, EGT 800 LBS/HR, Fuel Flow
Military Power	One Engine 101 % RPM 670 C, EGT 3500 LBS/HR, FF
Afterburner Power	One Engine 101 % RPM 670 C, EGT 8000 LBS/HR, FF

Meteorology

Temperature	34 C
Bar Pressure	.712 M Hg
Rel Humidity	21 %
Wind — Speed	Calm
— Direction	Calm

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 100 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 2

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 34 C
BAR PRESS = .712 M HG
REL HUMID = 21 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	68<							74<	72<	73<	72<	72<	68<	70<	70<	73<	72<	73<	73<
31.5	71<	69<	69<	69<	70<	67<	69<	73	75	73	74	74	73	75	75	74	74	75	74
40	72	71<	71<	72	72	72	71<	74	75	73	76	75	73	76	76	77	77	79	80
50	70	71	70<	70	70	70	72	74	75	75	74	73	74	78	77	78	78	78	79
63	68<	67<	67<	68<	69<	69<	66<	71<	71<	70<	70<	72	77	73	73	72	73	74	74
80	73	71	70	69<	69<	68<	66<	70<	72	70	72	74	72	75	74	74	75	74	75
100	74	73	71	68	66<	64<	63<	67	66<	69	70	68	70	78	71	70	70	74	75
125	68	68	66	68	70	64	64	68	66	62<	65	64	65	71	69	68	68	72	74
160	63<	65	64	62<	64	62<	62<	65	65	63<	63<	63<	67	70	70	67	67	65	65
200	61<	63<	61<	58<	61<	58<	61<	66	65	63<	63<	61<	63<	64	65	62<	62<	61<	65
250	61<	62<	59<		58<	56<	58<	62<	61<	60<	59<	60<	59<	60<	59<	60<	58<	59<	61<
315	59<	60<	59<	57<	57<	56<	56<	59<	59<	58<	58<	59<	58<	58<	58<	58<	56<	56<	57<
400	60	60	56<	59	58<	55<	55<	59	58<	57<	56<	58<	57<	57<	56<	56<	55<	54<	54<
500	54	55	52<	57	57	52<	54	56	55	54	54	55	55	54	51<	52<	50<	50<	48<
630	52	51<	49<	51<	55	49<	49<	54	51<	52	51<	52	52	54	53	53	53	51<	47<
800	53	54	51<	51<	56	51<	49<	55	53	53	52	53	56	53	54	52	53	52	47<
1000	52	52	52	49<	52	47<	46<	52	49<	48<	48<	50	54	50	51	49<	48<	48<	44<
1250	51	52	52	49	50	46<	45<	50	47<	47<	47<	49<	51	50	50	49	47<	47<	43<
1600	55	53	52	48	50	46<	44<	50	47<	48	47<	48	51	50	52	50	48	47<	46<
2000	59	58	55	50	51	48	44<	51	49	50	45<	49	51	51	54	53	51	50	48
2500	57	57	54	49	50	48<	44<	53	50	49	46<	47<	50	51	56	53	52	51	48<
3150	53	53	48	47<	48<	43<	44<	53	49	49	45<	45<	50	48	52	52	52	48<	46<
4000	59	53	51	48	48	42<	42<	49	49	53	46	45	51	51	53	59	58	49	45
5000	56	54	49	48	47	44	41<	48	48	51	42	43	47	48	51	56	55	48	45
6300	50	50	45	41	42	40<	38<	44	44	42	36<	38<	38<	41	45	48	47	44	42
8000	41<	41<	37<	32<	31<			32<	33<	31<	39<			31<	34<	35<	37<	33<	31<
10000	36<	35<	32<								35<								
OVERALL	80	79	78	78	79	77	77	81	82	81	82	82	82	84	83	83	84	84	85

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5 — MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 100 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 2

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 34 C
BAR PRESS = .712 M HG
REL HUMID = 21 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	78	79	77<	75<	74<	76<	80	82	84	83	83	82	81	83	83	84	82	82	83
31.5	79	78	82	79	79	81	80	83	83	81	83	85	84	83	85	84	82	83	84
40	85	83	85	86	84	86	84	88	87	88	89	88	88	89	89	89	90	89	90
50	85	85	85	84	86	87	85	90	90	90	88	88	89	90	91	90	90	91	92
63	82	84	86	85	86	85	85	88	88	87	89	88	88	89	89	91	89	90	90
80	86	85	86	84	85	84	83	87	89	87	88	89	89	90	90	89	88	90	90
100	79	79	78	77	76	79	79	82	84	81	82	82	81	84	84	84	83	85	85
125	79	81	79	80	82	80	77	80	78	79	79	80	82	85	86	84	84	86	87
160	77	77	77	77	77	74	74	78	77	76	77	77	77	80	81	80	80	81	81
200	74	74	73	73	71	72	72	75	74	76	76	74	75	76	76	76	76	77	77
250	72	73	71	71	70	70	69	73	74	74	74	73	73	73	74	73	72	74	74
315	72	72	69	70	70	69	69	71	70	72	71	71	69	68	67	68	68	69	69
400	72	74	70	72	70	68	67	70	69	70	71	69	68	68	69	67	67	70	66
500	66	67	65	68	68	67	65	68	67	68	68	67	65	66	66	66	66	66	65
630	63	66	61	65	67	63	63	66	66	66	66	65	63	64	64	64	64	65	62
800	66	67	64	68	69	66	66	67	66	67	66	65	64	65	66	66	67	66	65
1000	67	68	64	67	66	66	66	66	67	67	67	65	67	65	65	66	66	66	65
1250	66	68	64	68	67	67	66	66	68	68	68	67	67	66	66	67	68	67	66
1600	65	67	63	66	66	65	65	66	67	67	67	66	66	64	63	64	65	64	64
2000	67	69	63	68	70	64	64	64	64	64	64	63	62	62	62	64	64	63	62
2500	62	65	60	65	65	60	60	60	61	60	60	60	60	59	60	61	61	60	59
3150	61	63	60	62	63	59	60	60	60	59	59	58	58	57	58	58	59	58	57
4000	59	60	56	57	60	57	57	61	59	57	58	57	57	57	58	58	60	58	58
5000	53	54	51	52	54	51	52	54	52	51	51	50	50	49	50	51	51	50	50
6300	53	50	46	48	50	48	47	50	46	46	45	44	46	48	46	48	49	47	47
8000	51	46	43	43	45	44	43	46	41<	43	40<	40<	44	46	42	45	49	43	42
10000	40<	40<	40<	40<	40<	40<	40<	37<	37<	37<	37<	37<	37<	42<	42<	42<	42<	42<	42<
OVERALL	92	92	93	92	92	93	92	95	96	95	95	95	96	97	97	97	96	97	98

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: 5

MEASURED SOUND PRESSURE LEVEL (DB)
1/3 OCTAVE BAND
DISTANCE = 100 METERS

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 34 C
BAR PRESS = .712 M HG
REL HUMID = 21 %

FREQ (HZ)	ANGLE (DEGREES) 0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	82	83	84	82	83	82	84	87	89	87	87	88	89	88	87	88	88	89	88
31.5	80	80	82	82	83	84	83	87	87	86	87	88	88	88	88	88	87	89	85
40	86	86	87	88	89	90	89	91	91	91	92	93	92	91	91	92	94	93	93
50	87	87	88	88	88	89	88	94	93	93	94	92	94	95	95	93	94	95	95
63	88	89	91	91	92	91	91	95	93	94	96	96	96	97	96	97	96	97	97
80	87	87	90	90	90	87	90	93	93	94	95	94	95	95	95	95	95	95	96
100	88	88	88	89	87	89	91	95	95	95	94	95	96	93	95	93	94	94	94
125	80	82	80	81	84	82	83	85	86	85	86	88	87	88	87	88	87	88	88
160	85	86	86	87	84	81	81	83	84	83	85	89	88	90	91	91	90	92	92
200	81	81	81	84	81	80	80	81	78	78	80	81	84	85	85	85	85	86	87
250	78	79	77	78	77	77	77	81	82	81	83	83	83	81	81	81	80	83	83
315	76	77	74	76	75	76	75	78	78	78	79	78	79	78	77	77	75	77	76
400	74	77	73	74	74	75	73	77	79	78	80	77	76	74	74	74	73	74	74
500	69	71	70	72	72	71	69	72	73	73	76	73	74	73	72	72	71	71	70
630	68	70	67	70	71	70	68	71	71	71	73	70	71	70	70	70	70	69	68
800	67	69	67	69	70	70	69	71	72	71	72	70	71	72	70	70	72	72	70
1000	70	70	69	69	71	71	70	71	71	70	72	70	72	71	70	70	71	71	70
1250	69	70	70	70	70	71	69	72	71	70	73	70	71	70	69	70	71	71	69
1600	69	69	69	68	69	70	68	71	70	70	72	70	70	69	68	69	70	71	68
2000	66	67	65	66	65	66	66	67	65	65	67	66	65	66	65	66	67	67	65
2500	61	65	60	64	59	61	63	64	62	60	62	61	61	63	62	63	64	64	63
3150	59	63	58	62	56	59	61	63	59	58	60	58	59	60	58	59	60	60	58
4000	56	59	54	58	53	55	62	62	56	55	58	55	56	59	57	58	59	58	58
5000	52	55	49	52	47	50	57	54	50	48	50	49	50	53	52	52	53	52	52
6300	50	51	46	48	45	47	54	52	48	47	47	47	48	52	52	52	52	52	52
8000	49	47	45	45	45	45	51	48	47	47	47	47	47	52	52	52	52	52	52
10000	45	45	45	45	45	45	45	47	47	47	47	47	47	52	52	52	52	52	52
OVERALL	96	96	97	97	97	97	98	101	101	101	102	102	102	102	103	102	103	103	103

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 6

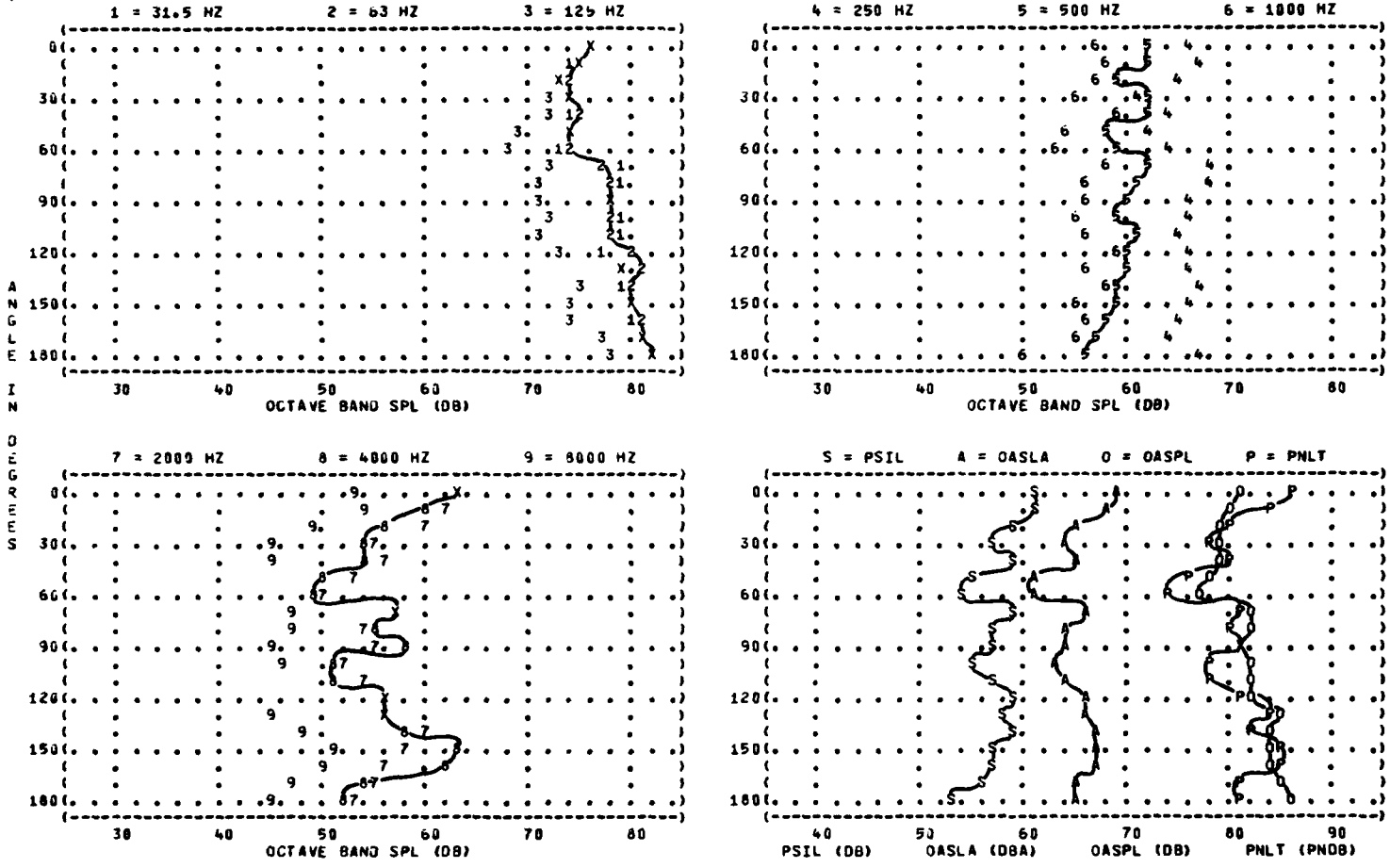

FIGURE: NORMALIZED FARFIELD NOISE LEVELS

3

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
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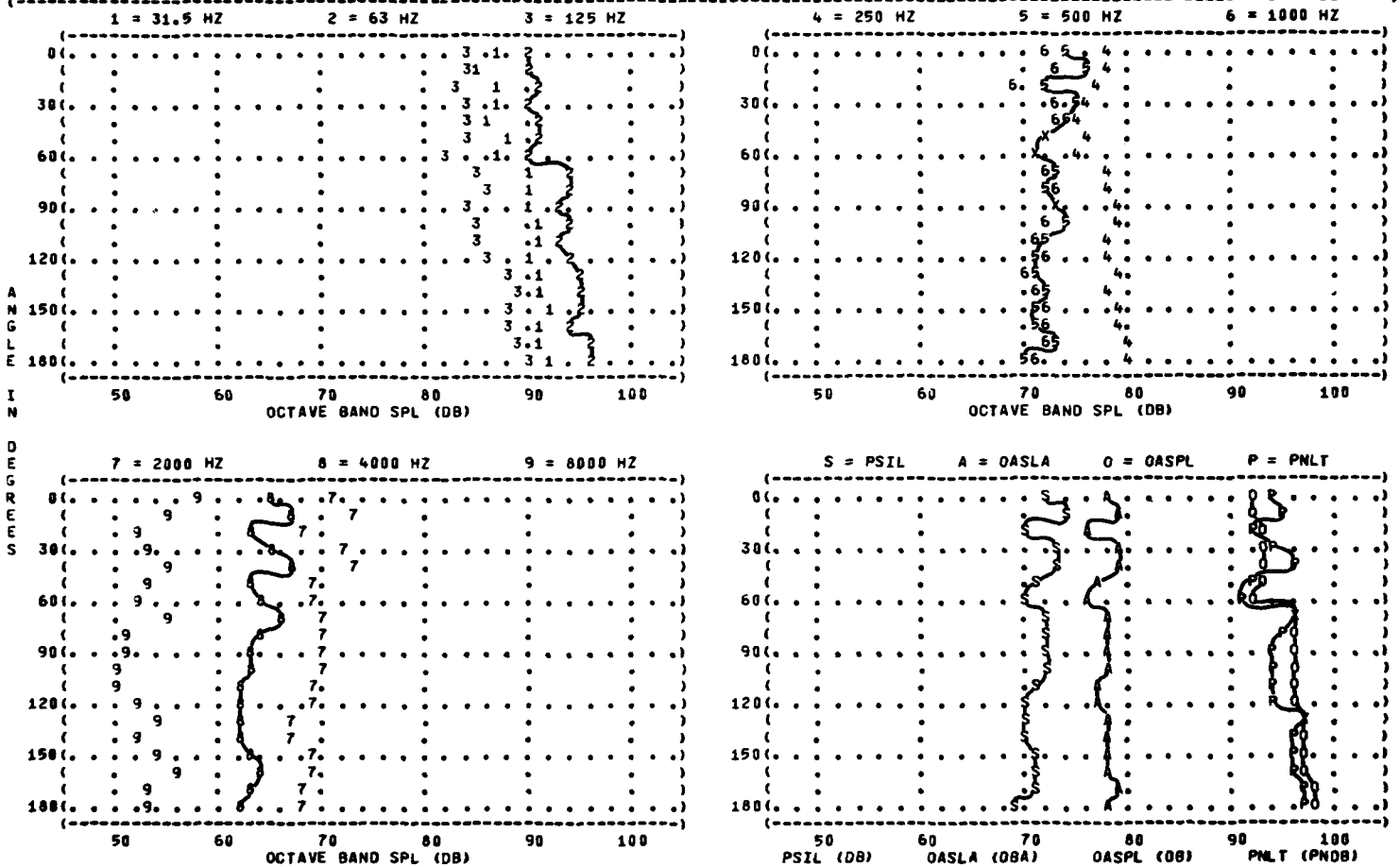

FIGURE: 3 NORMALIZED FARFIELD NOISE LEVELS

DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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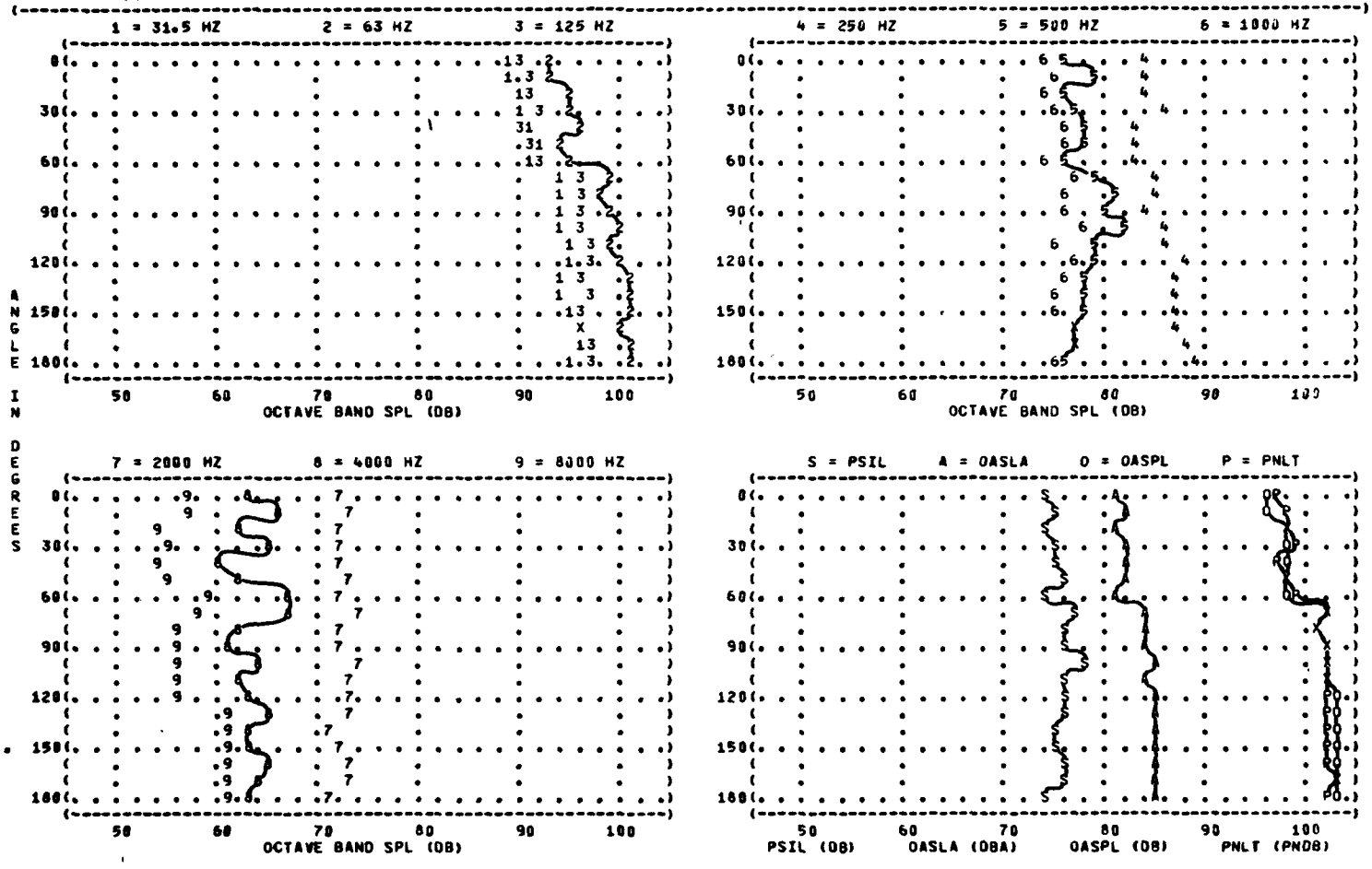

FIGURE 4. OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
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POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85

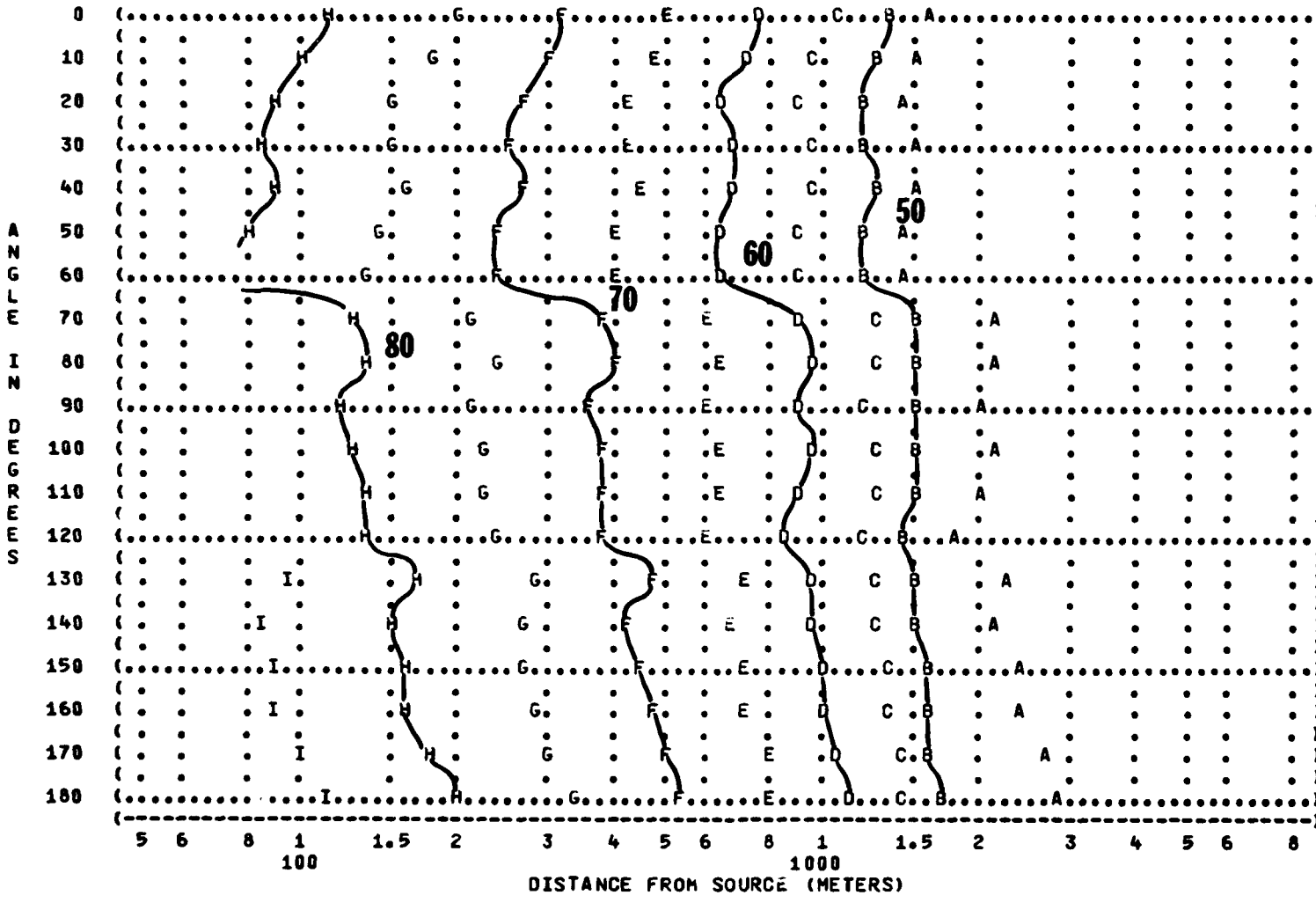

FIGURE: 4 OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100

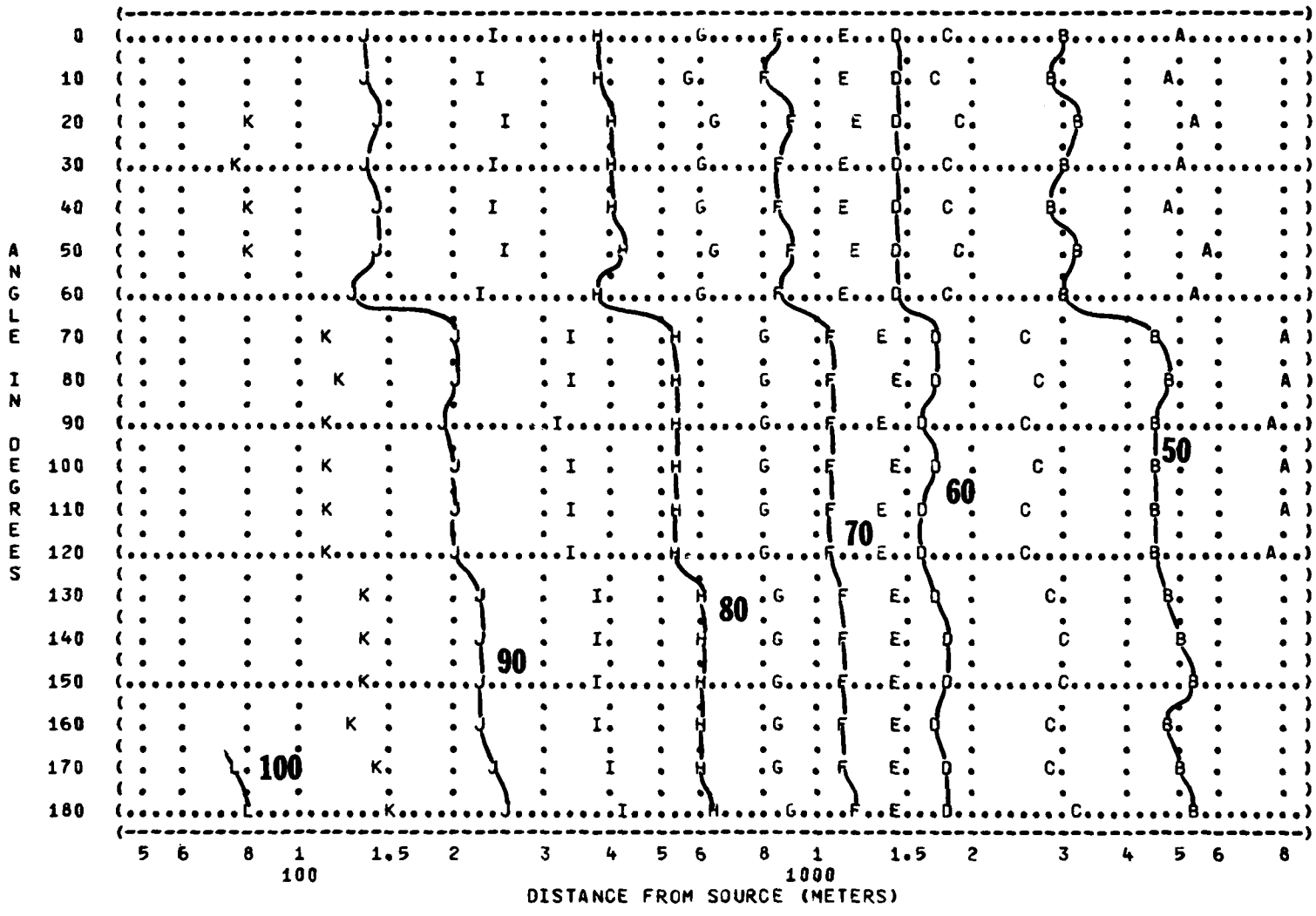

FIGURE 4: OVERALL SOUND PRESSURE LEVEL (OASPL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100
M	105

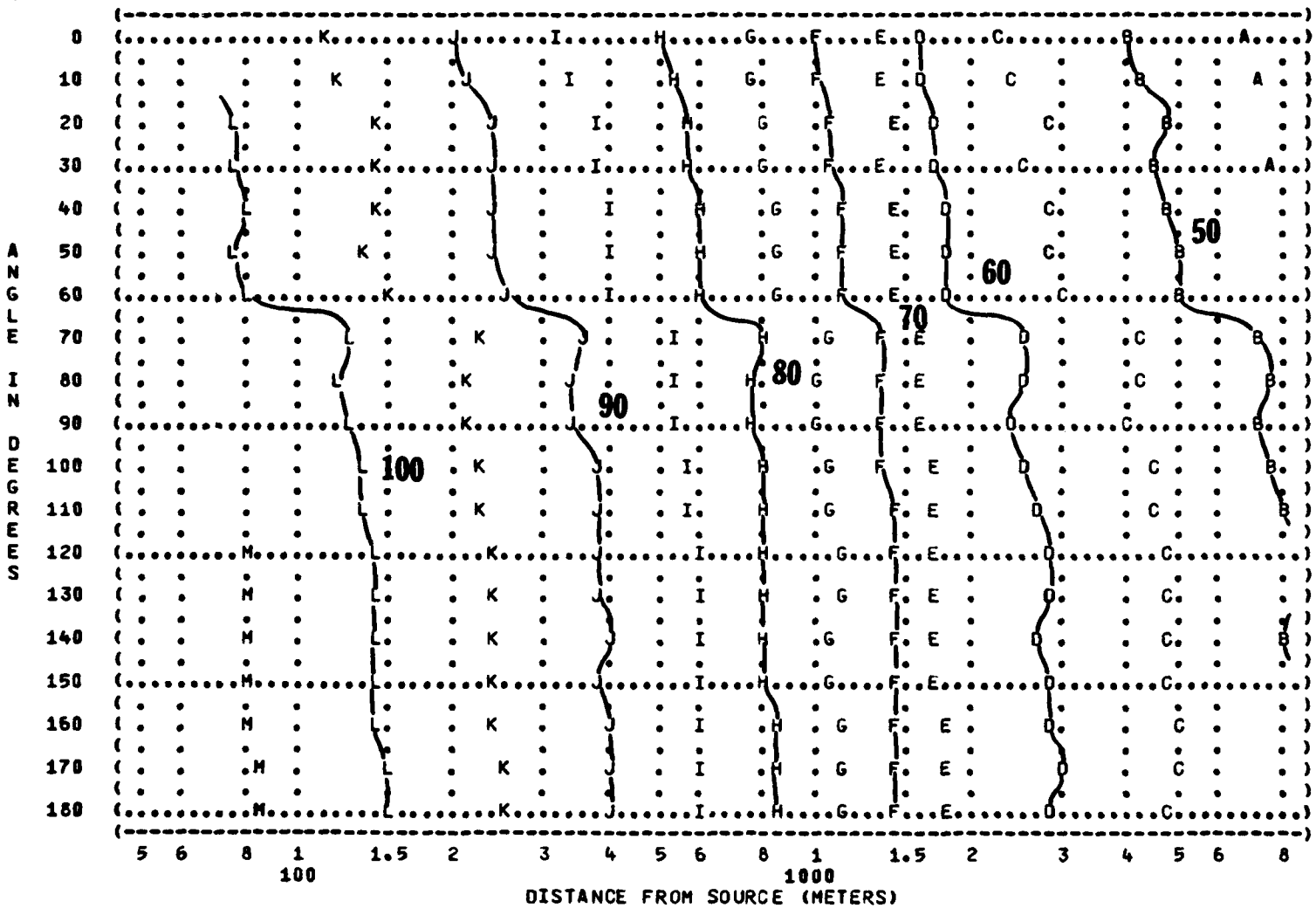

FIGURE: 5

C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85

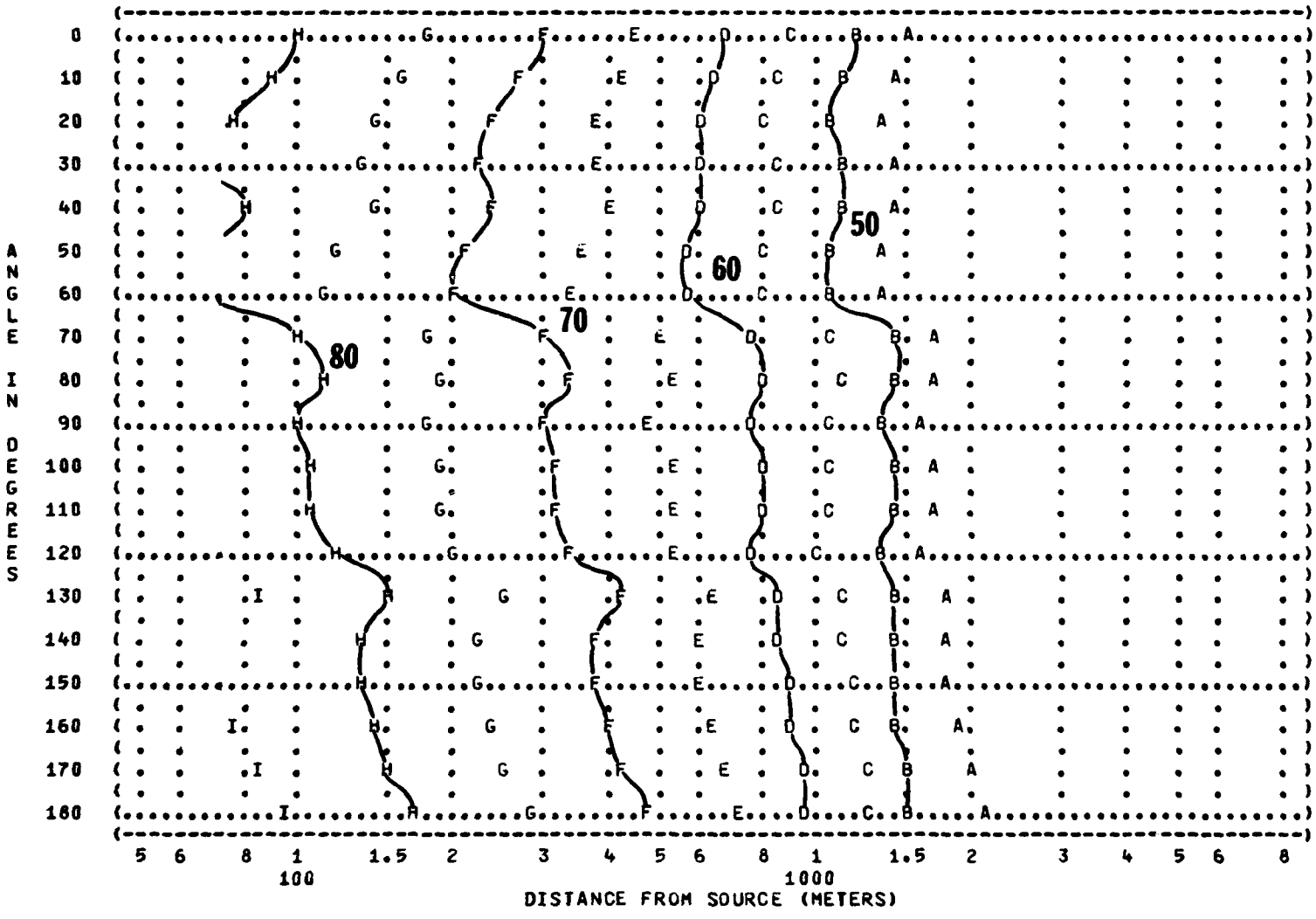


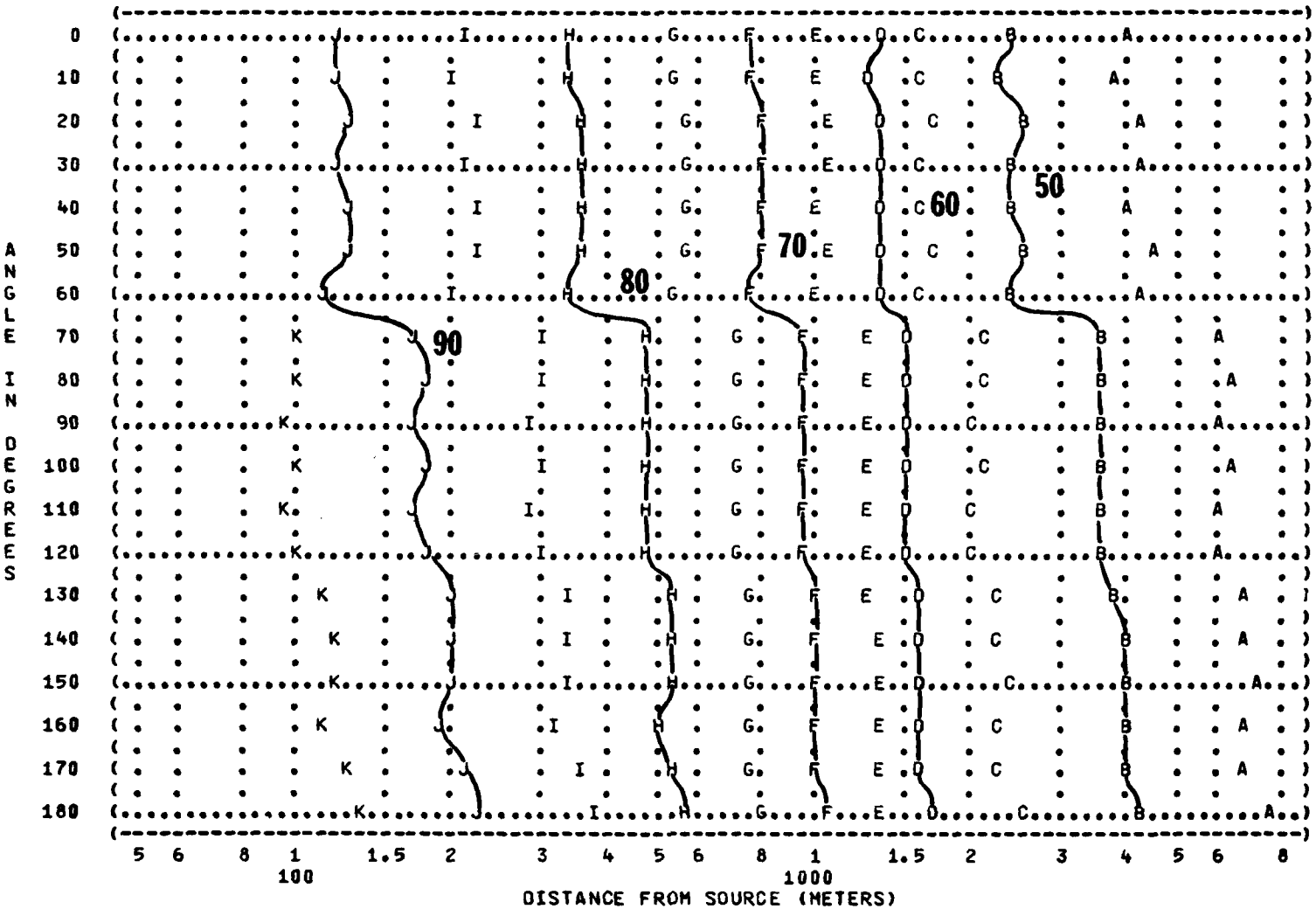
FIGURE 5: C-WEIGHTED OVERALL SOUND LEVEL (OASLC) EQUAL LEVEL CONTOURS (DBC)

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 14



POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95

FIGURE: 5 C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 14

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBC
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85
J	90
K	95
L	100

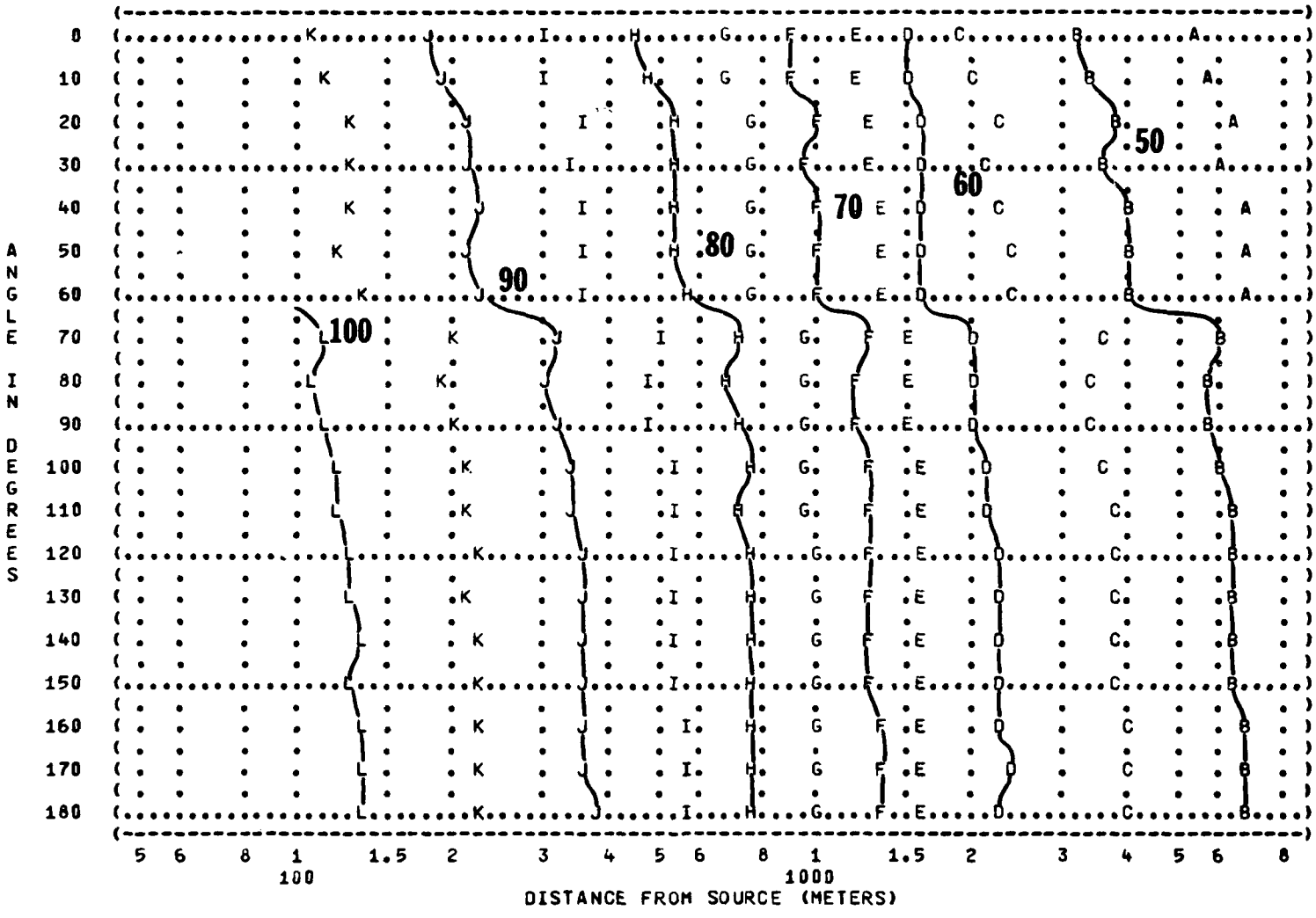


FIGURE 6 A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70

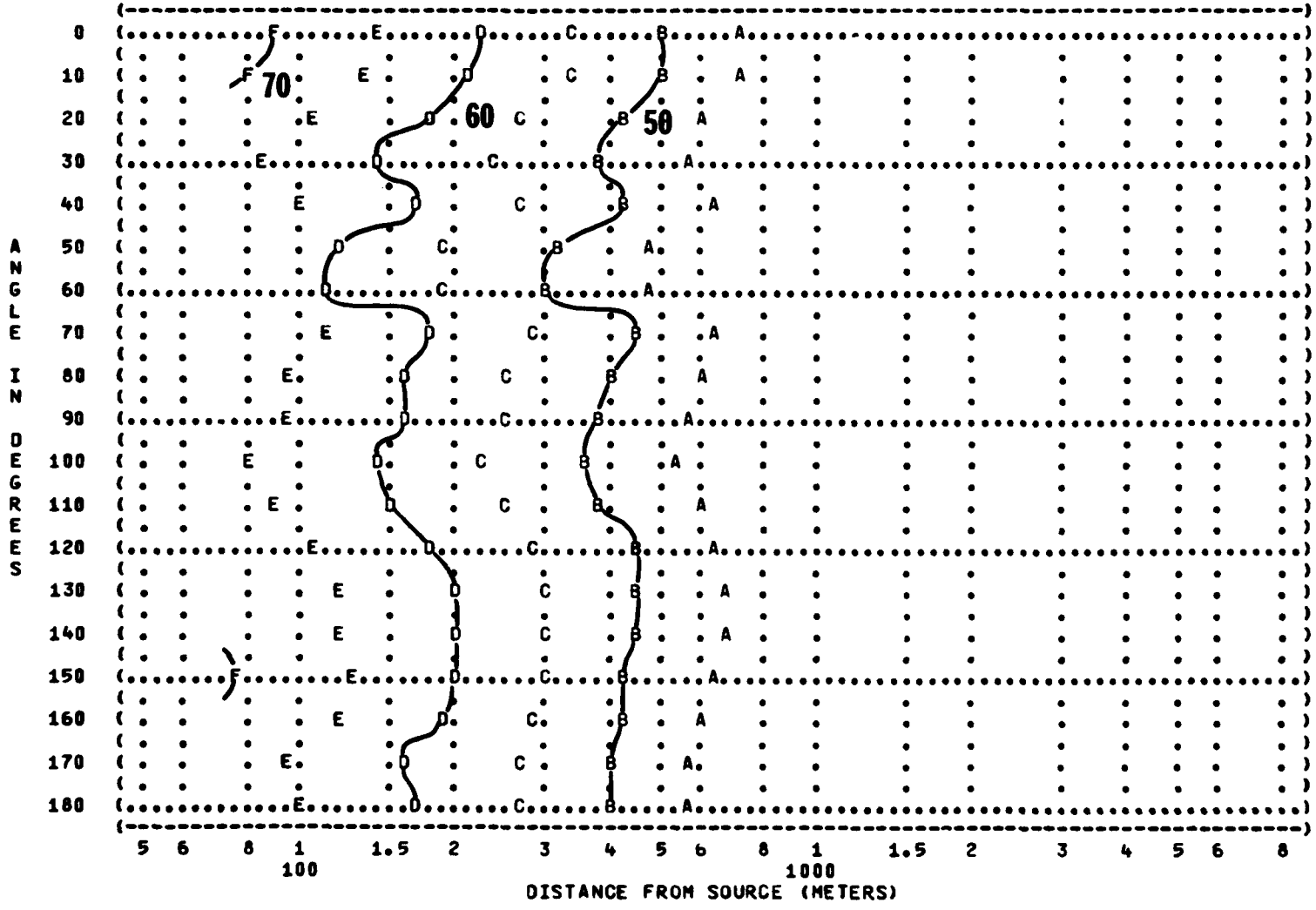

FIGURE: 6 A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 15

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80

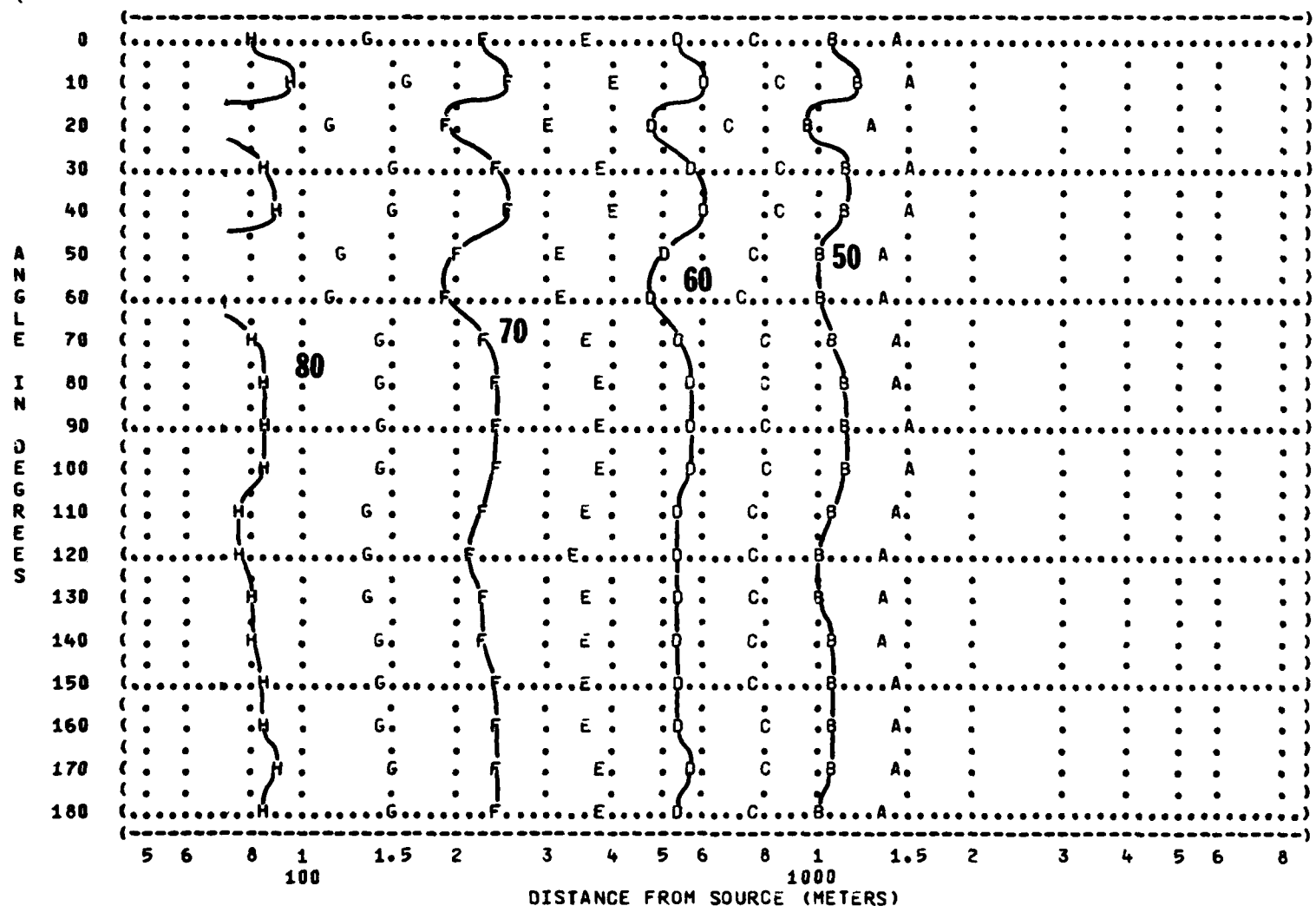

FIGURE 6: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 15

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DBA
A	45
B	50
C	55
D	60
E	65
F	70
G	75
H	80
I	85

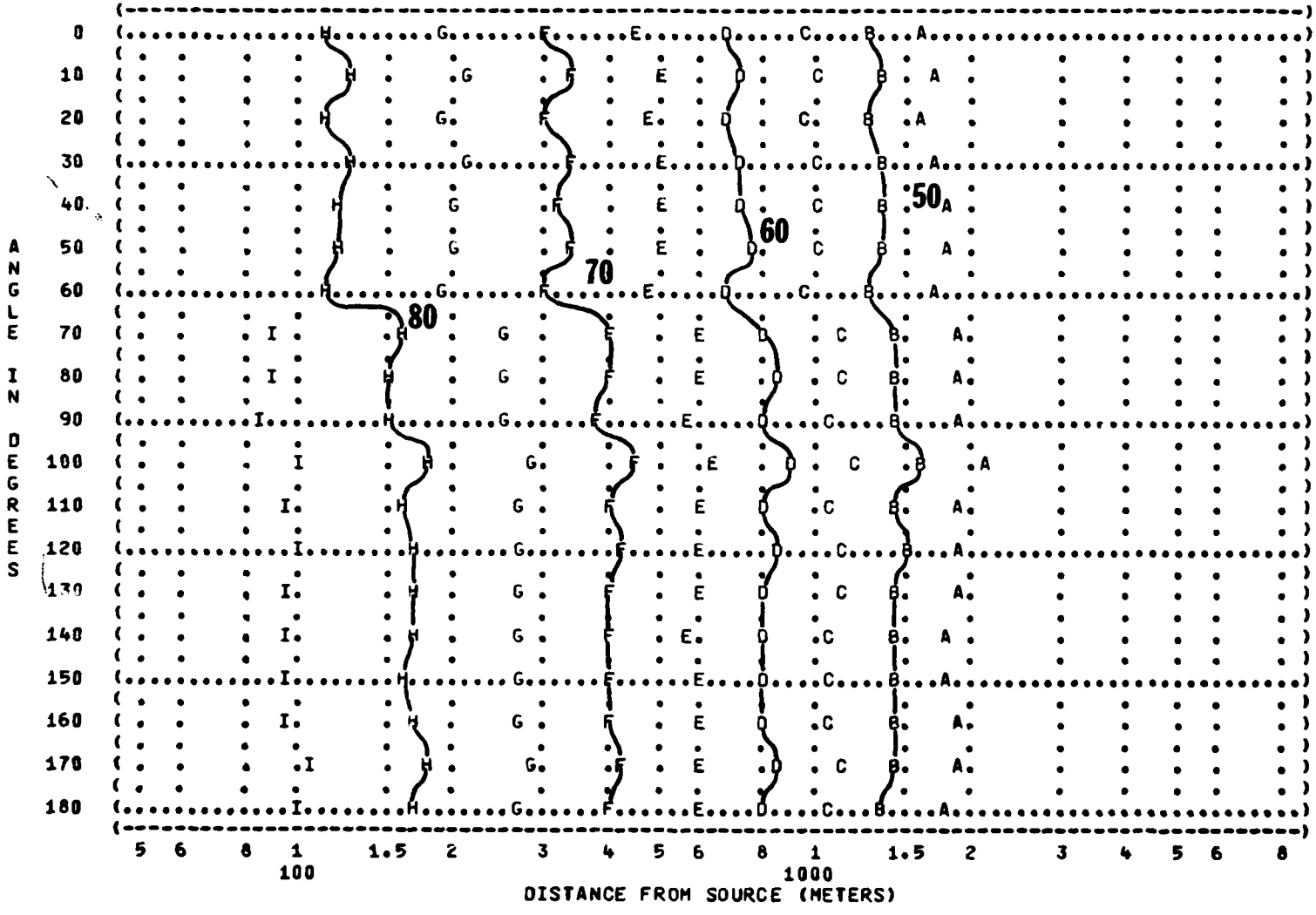

FIGURE 7: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

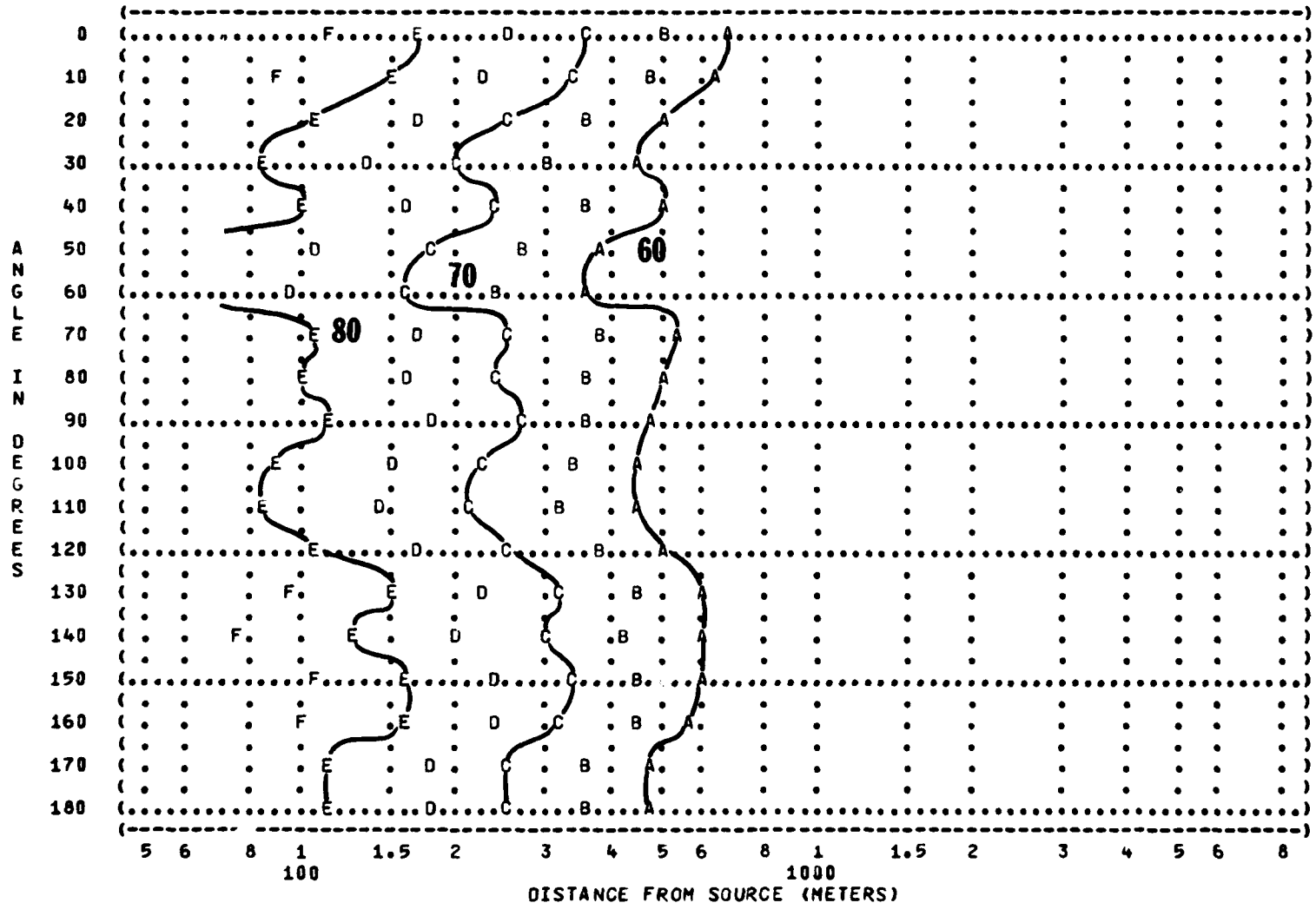

FIGURE: 7 PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 16

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	PNDB
A	60
B	65
C	70
D	75
E	80
F	85
G	90
H	95

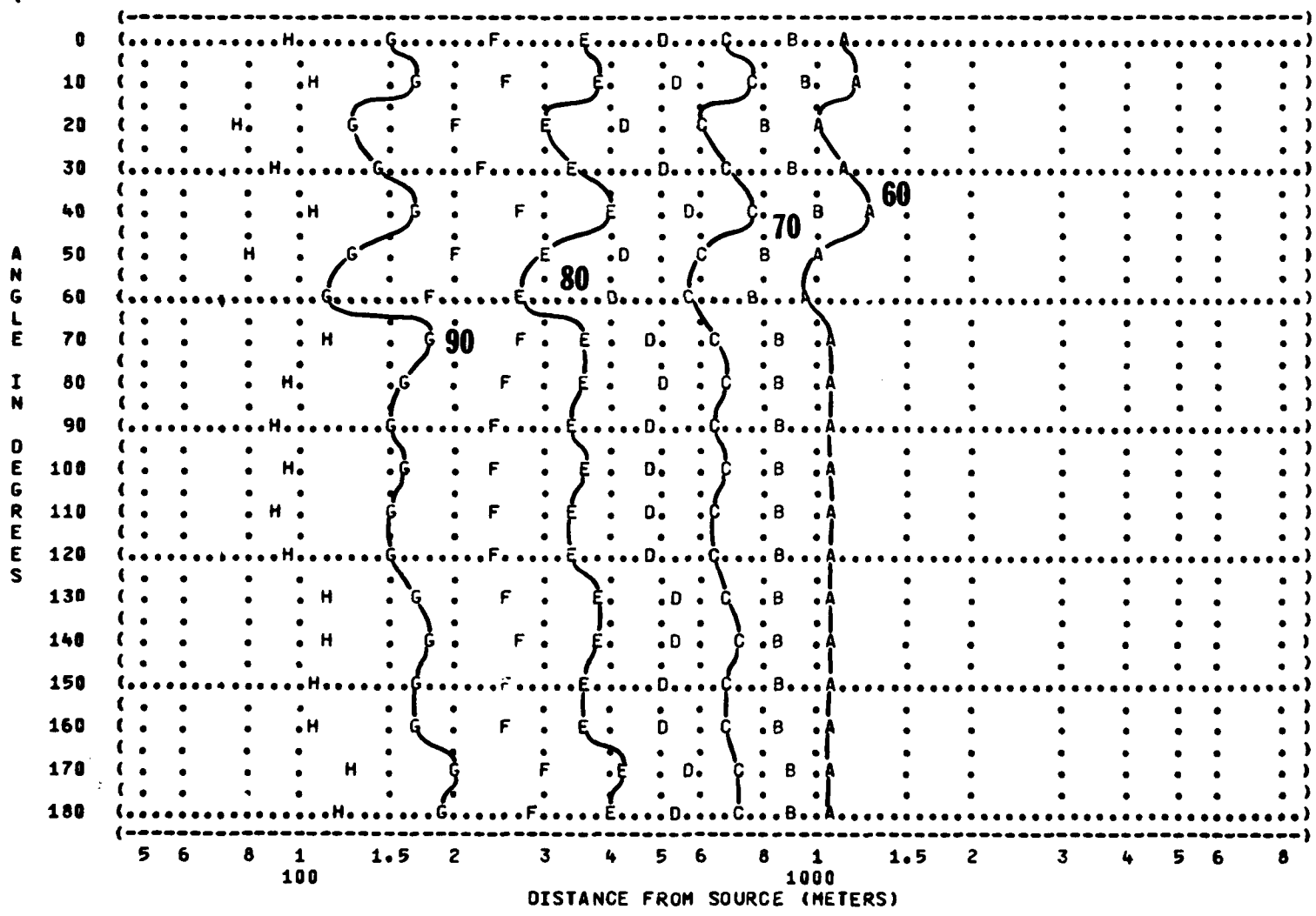

FIGURE 7: PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT) EQUAL LEVEL CONTOURS (PNDB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 16

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	PNDB
A	60
B	65
C	70
D	75
E	80
F	85
G	90
H	95
I	100
J	105

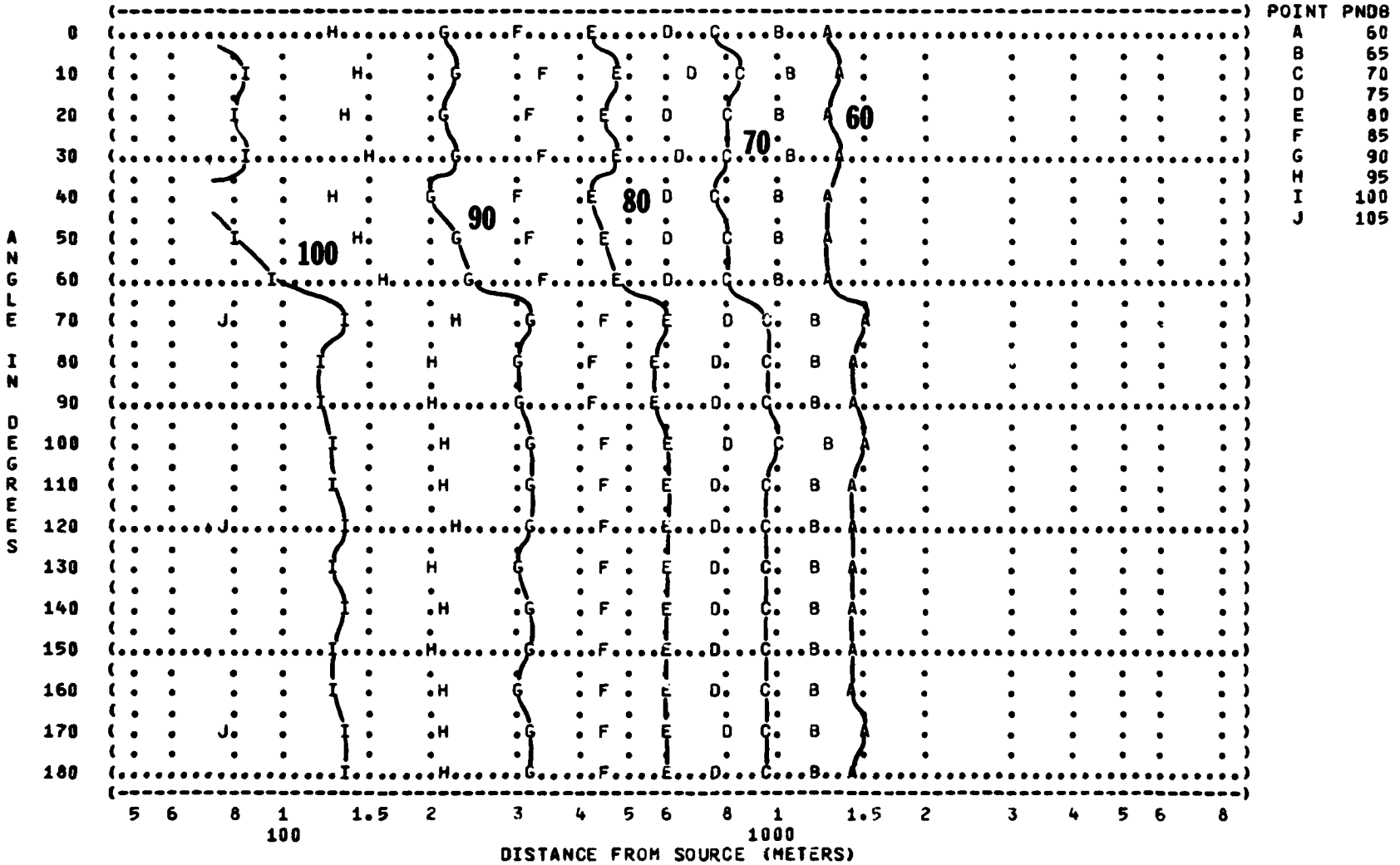

FIGURE 8 PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

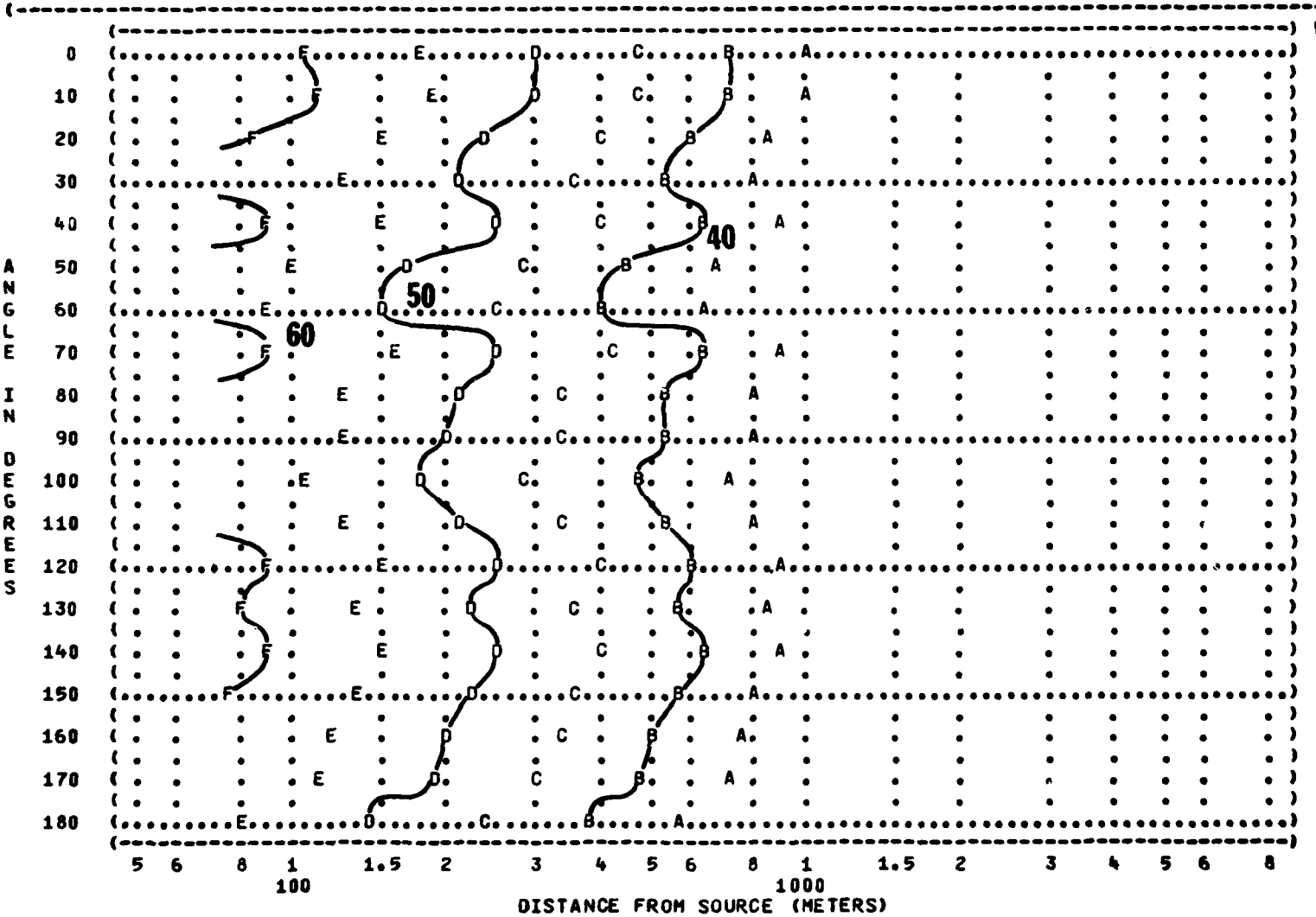

FIGURE 8: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
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NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

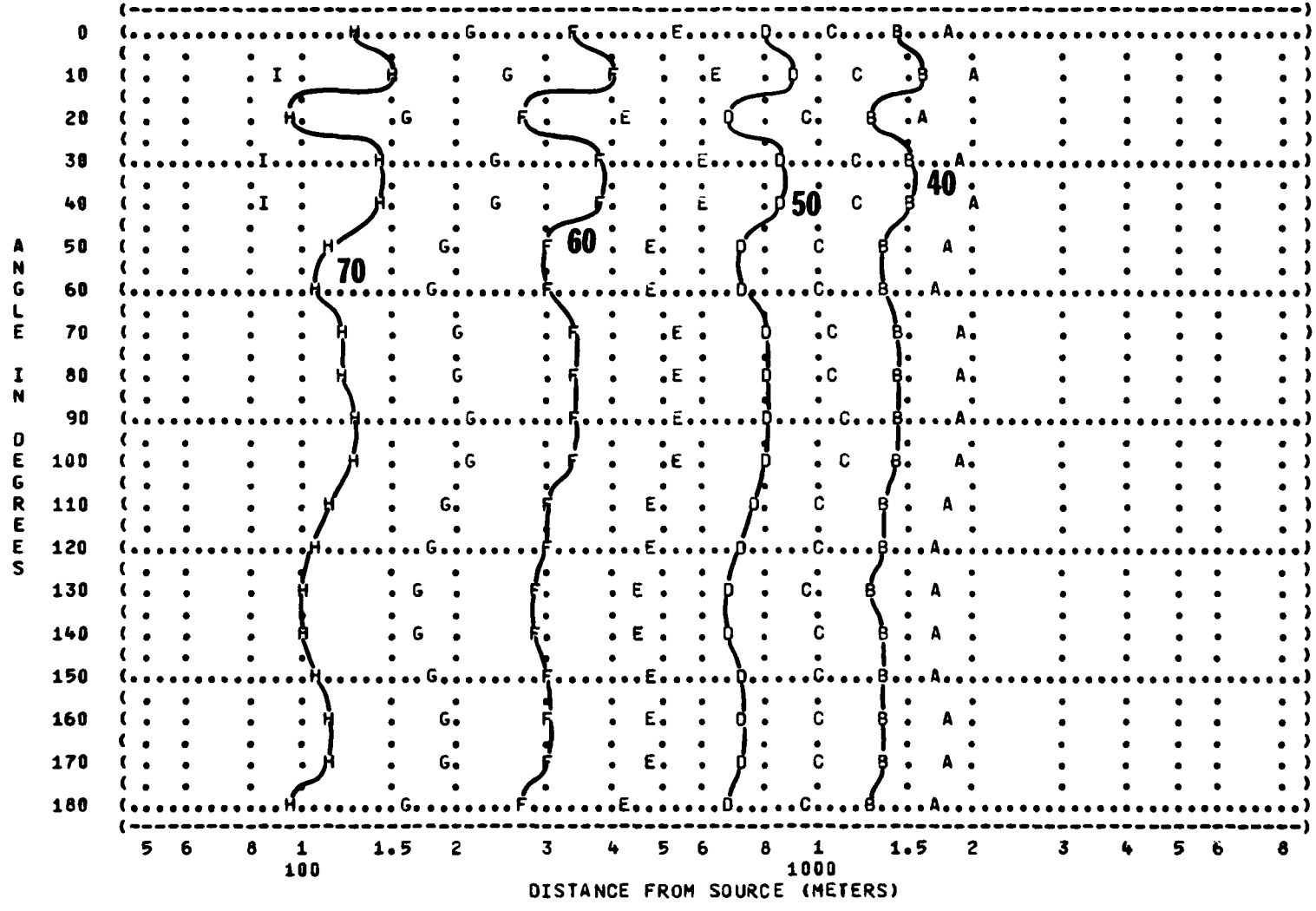


FIGURE 8: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 17

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80

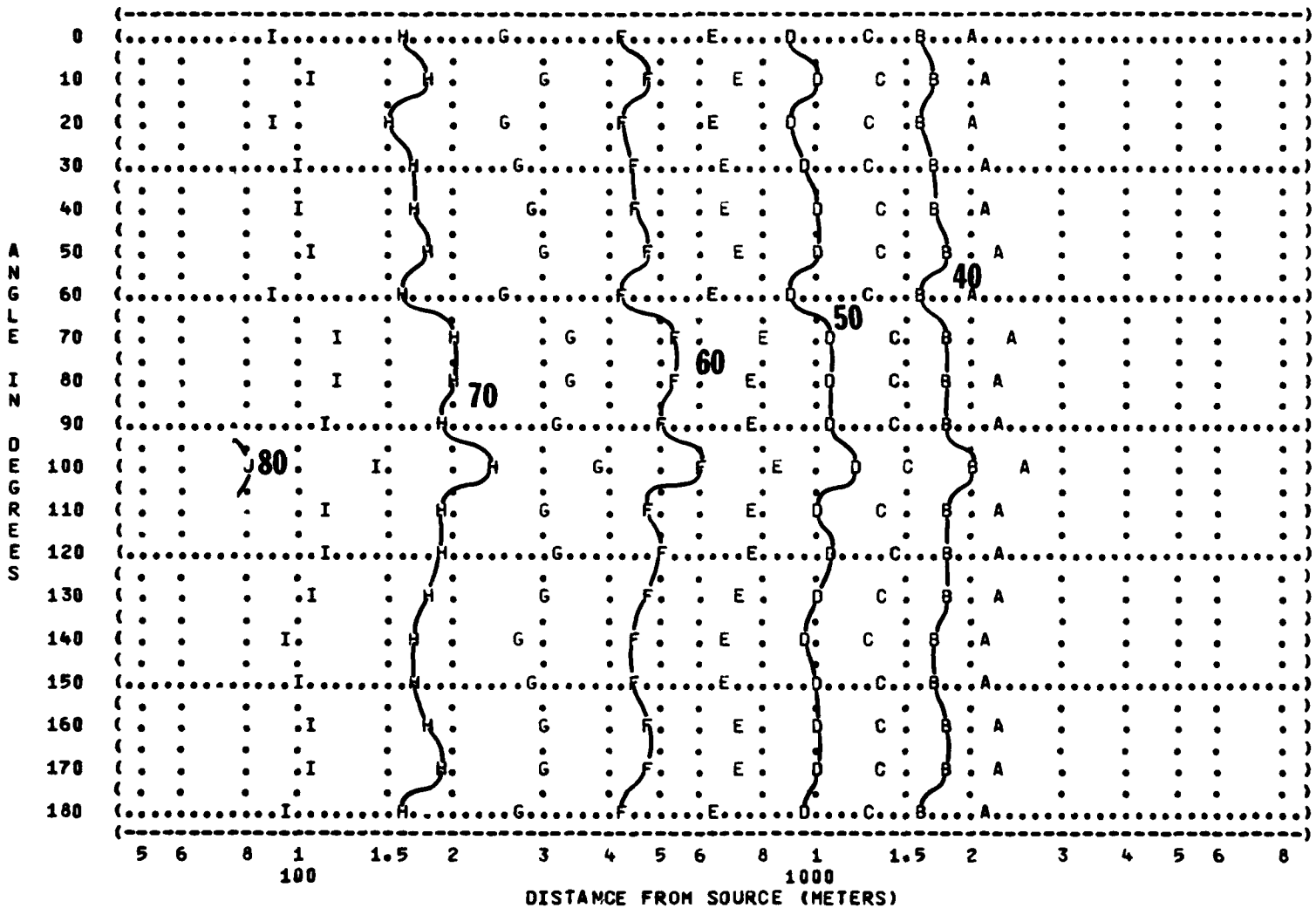


FIGURE: 9	MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) EQUAL TIME CONTOURS (MINUTES)	IDENTIFICATION:
NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE	OPERATION: ENGINE RUNUP 80% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)	METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %	OMEGA 1.4 TEST 77-746-001 RUN 01 14 SEP 78 PAGE 7

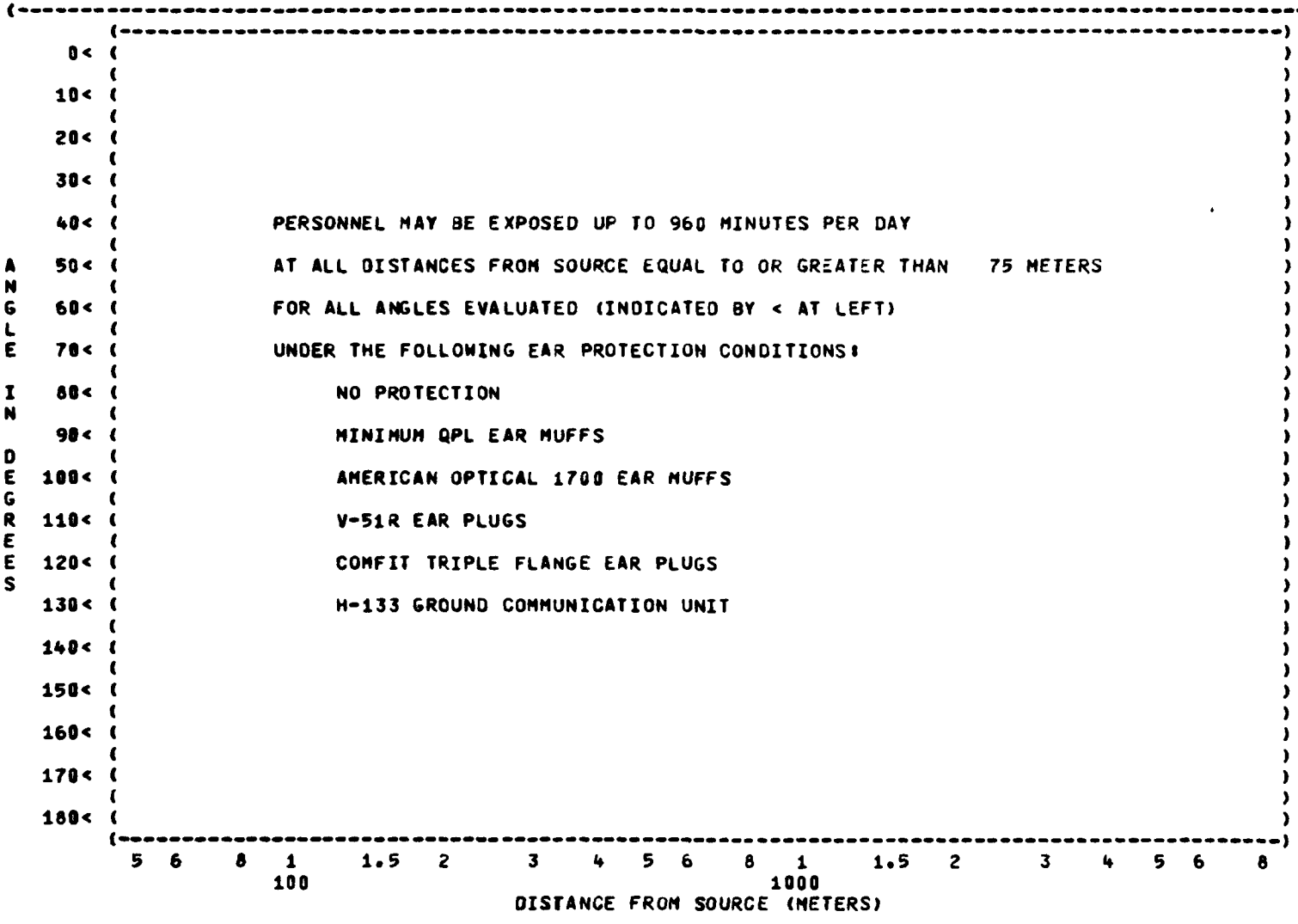


FIGURE 9: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 7

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960

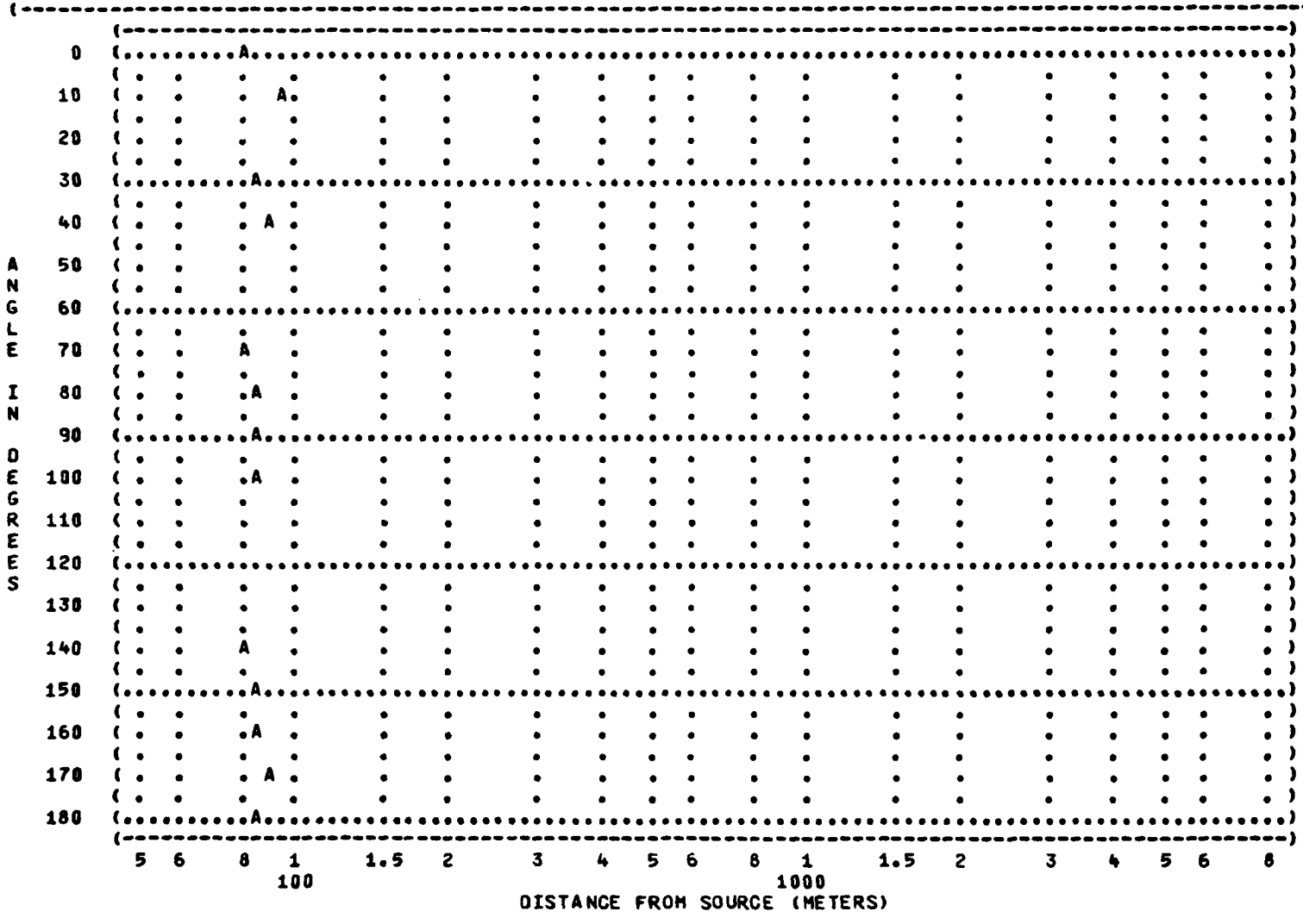


FIGURE 9: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 02 14 SEP 78 PAGE 8

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: MILITARY POWER 101% RPM, SINGLE ENGINE, GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C, BAR PRESS = .760 M HG, REL HUMID = 70 %

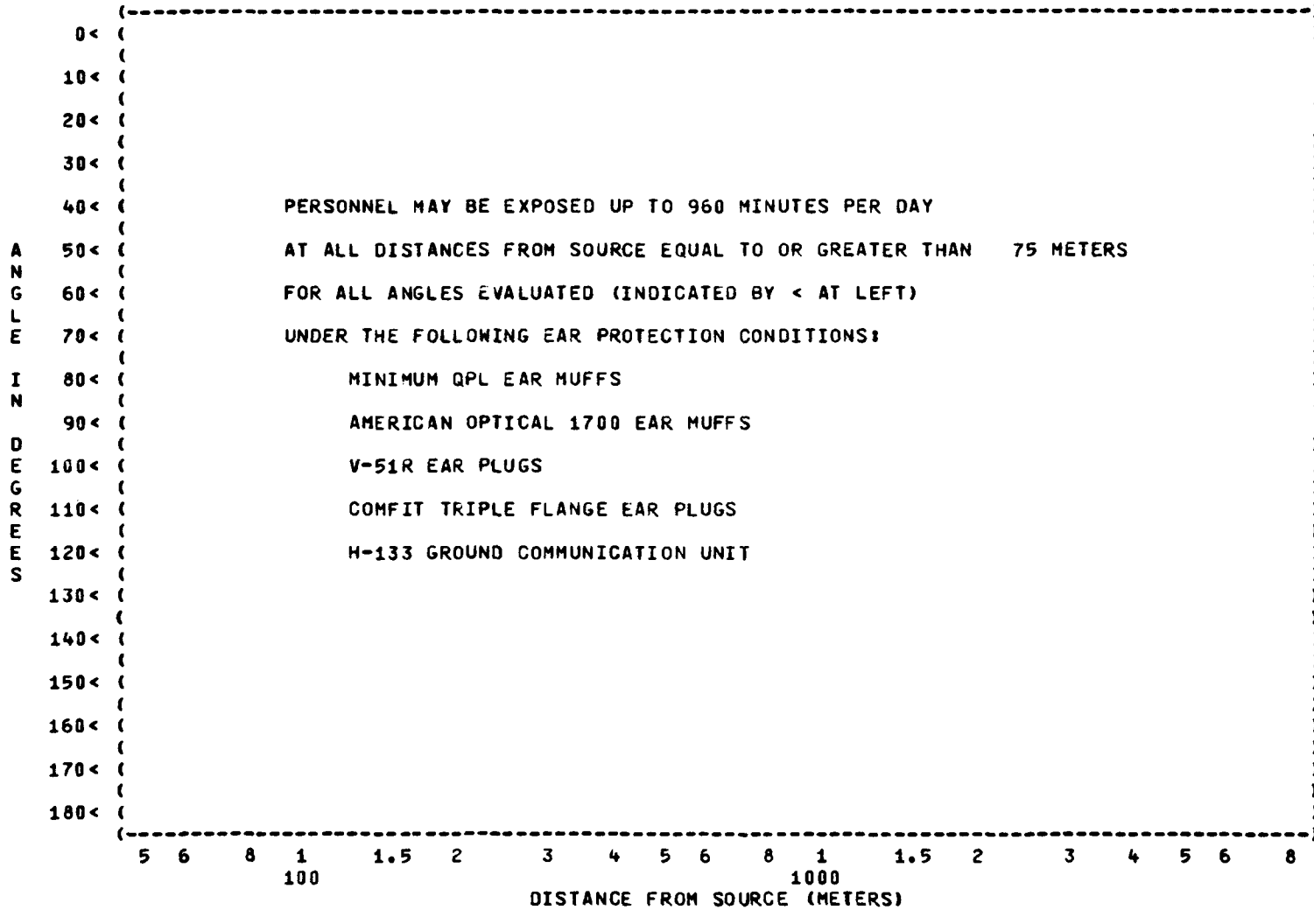


FIGURE: 9

MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
NO PROTECTION

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 7

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960
B	480

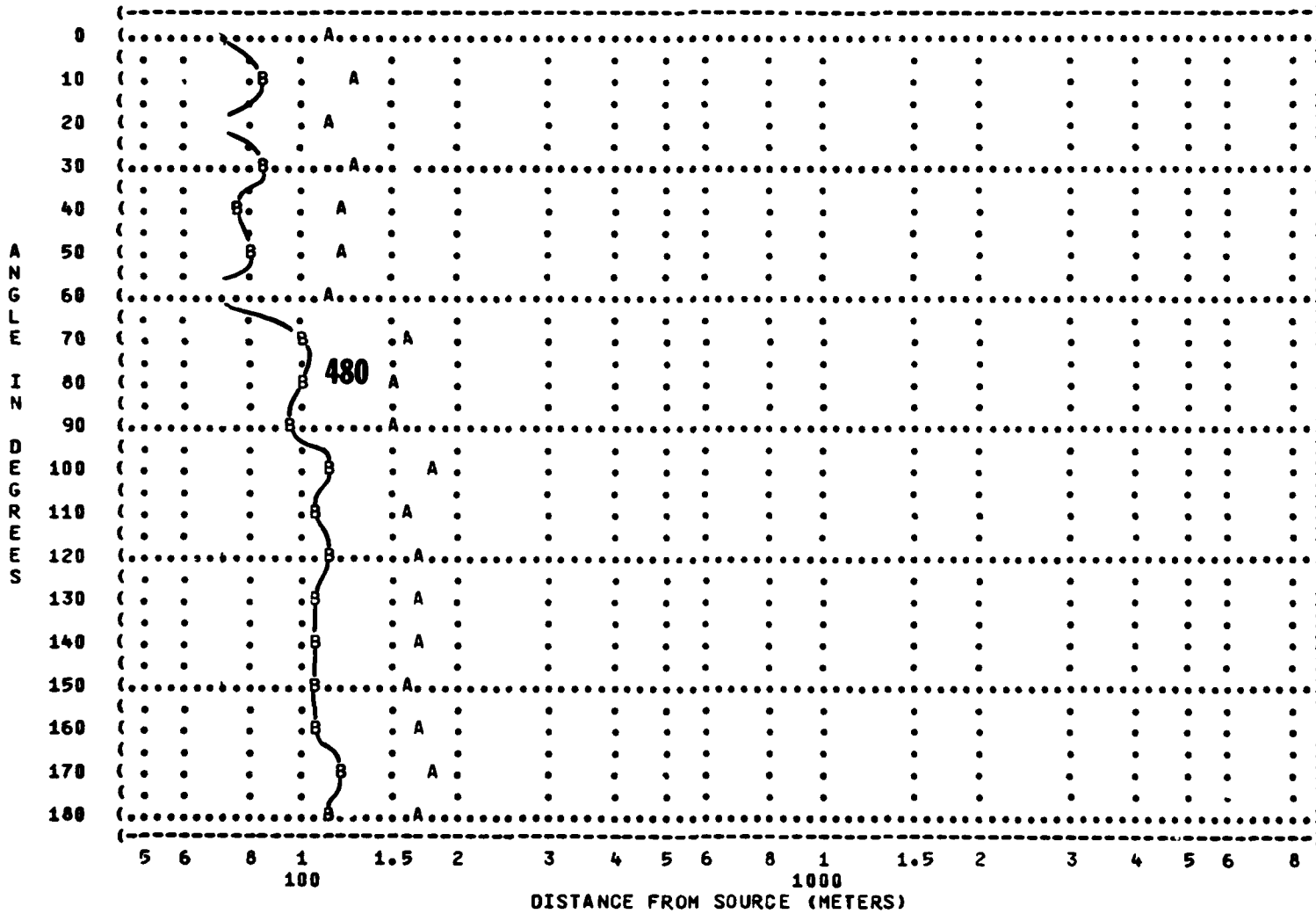


FIGURE 9: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)
MINIMUM QPL EAR MUFFS

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 8

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	MIN
A	960

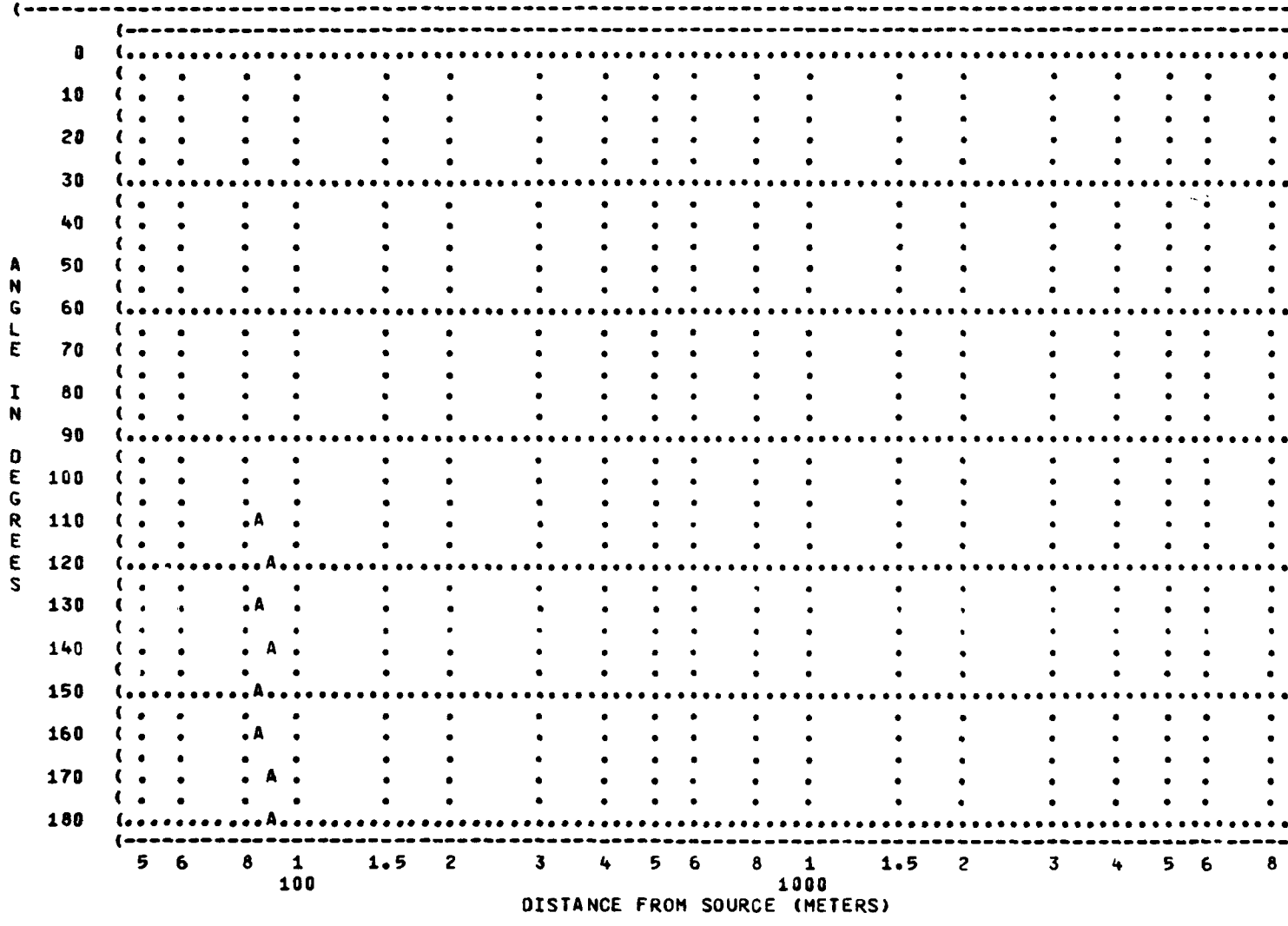


FIGURE 9: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
EQUAL TIME CONTOURS (MINUTES)

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
PAGE 9

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

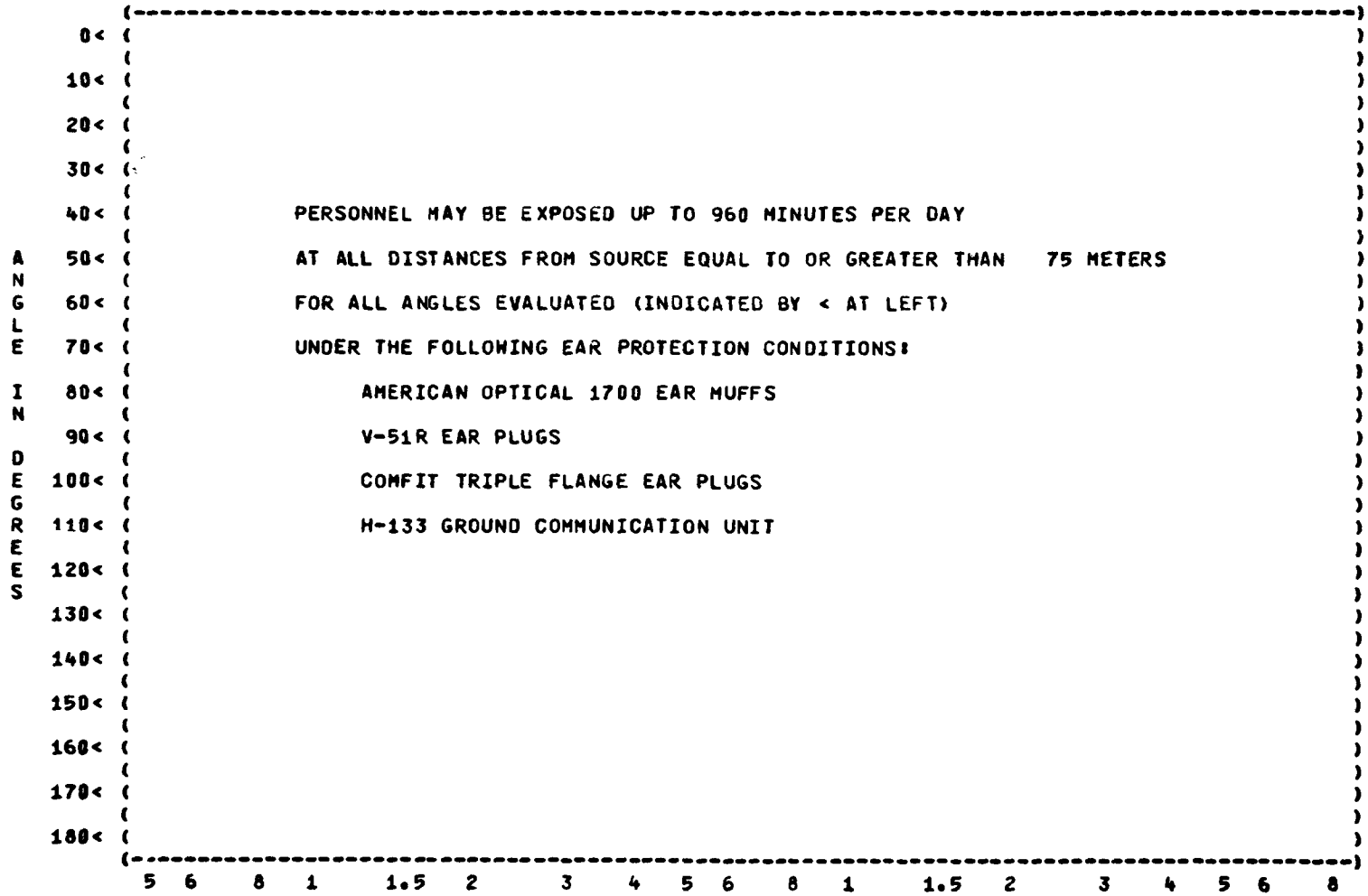


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 18

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80

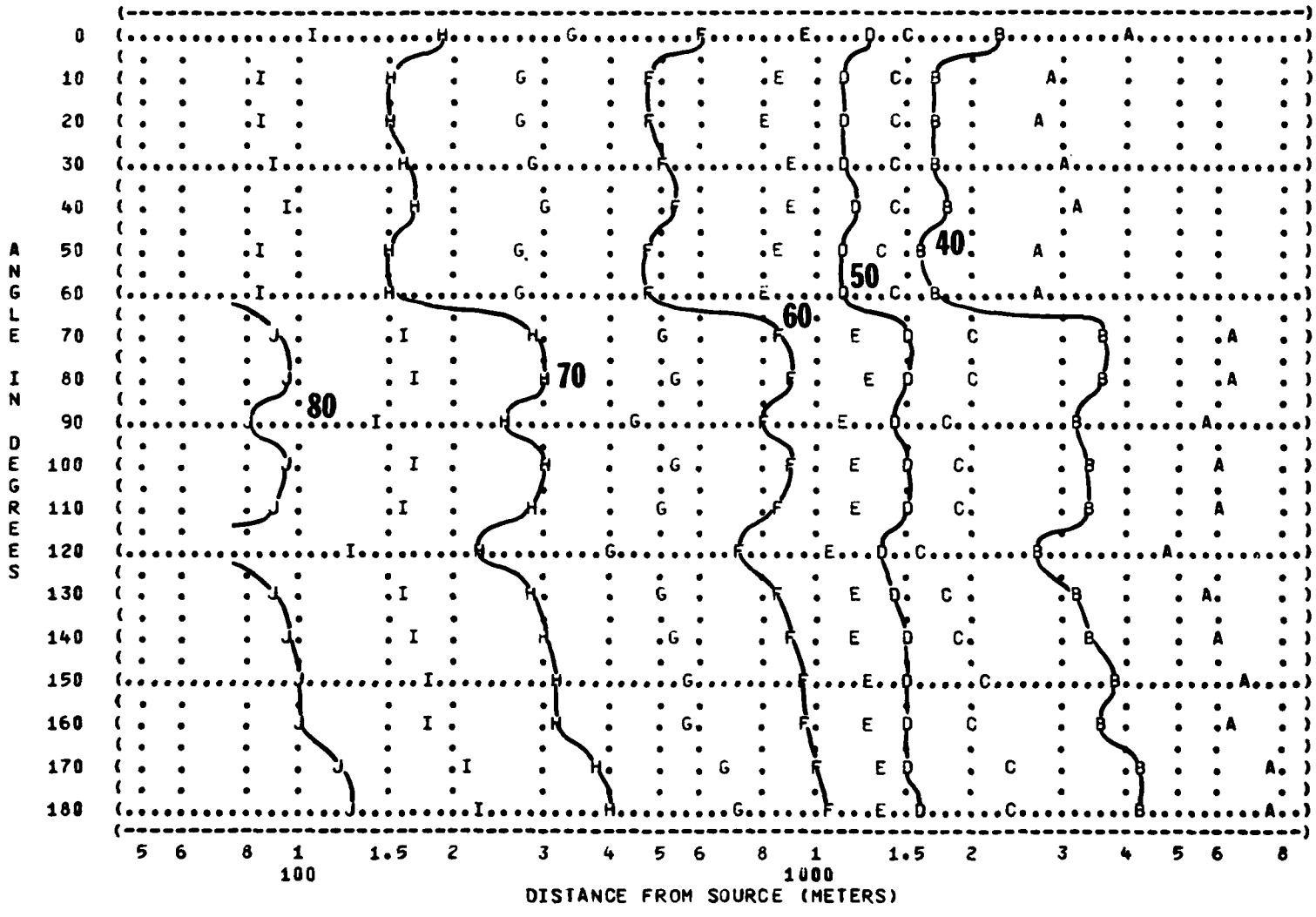


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 19

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80

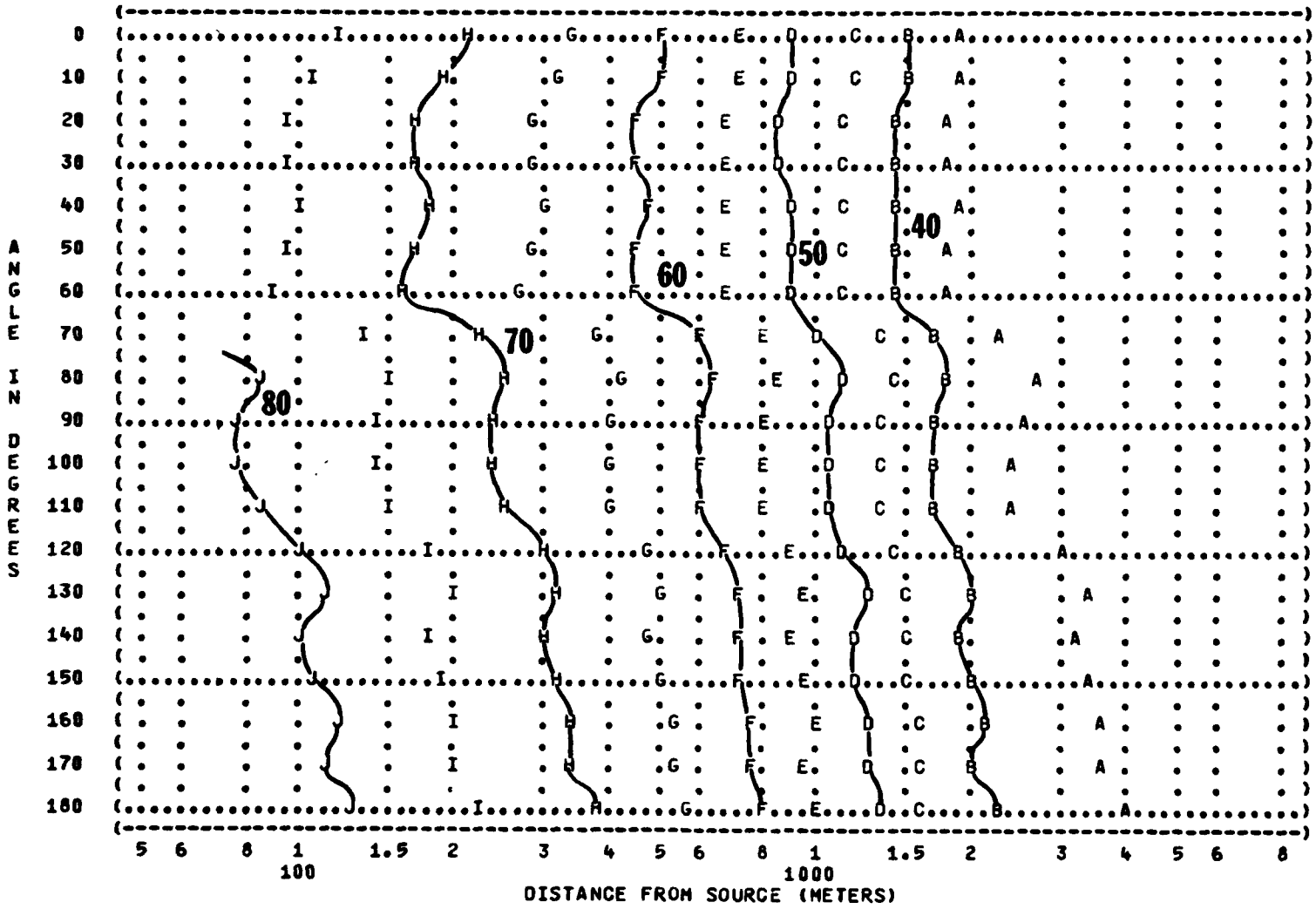


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 76
PAGE 20

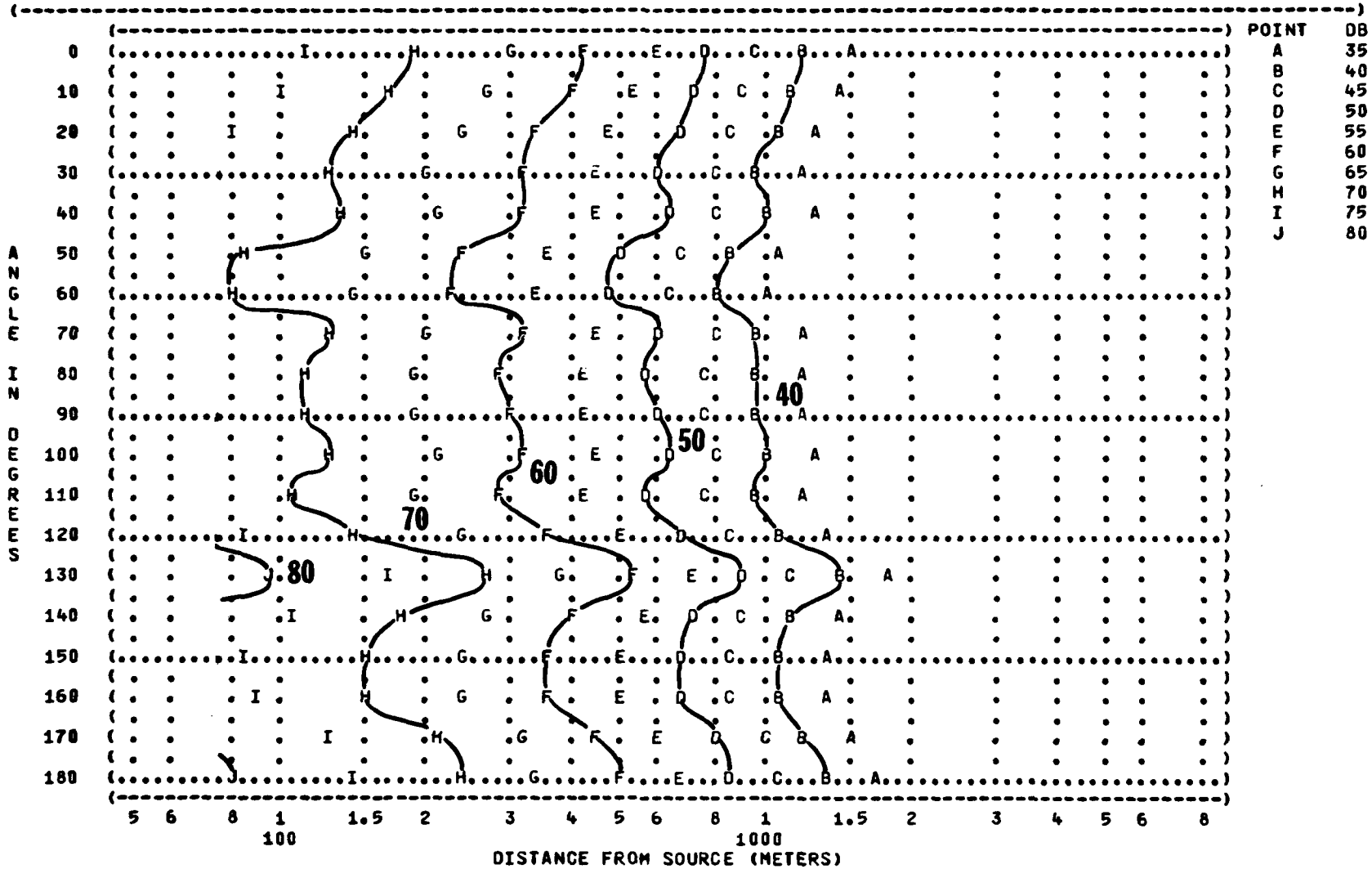


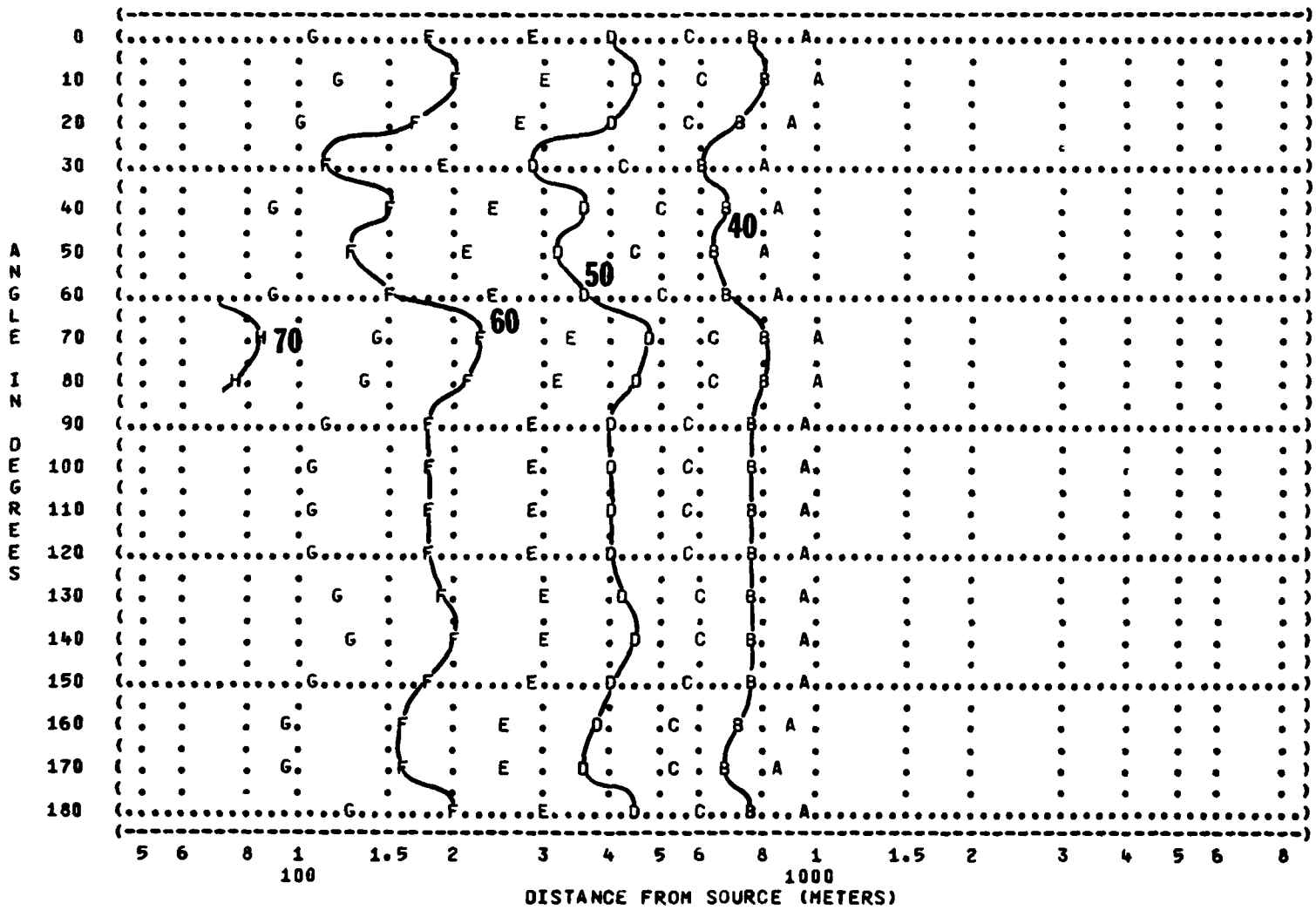
FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 01 14 SEP 78 PAGE 21

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: ENGINE RUNUP 80% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 01 14 SEP 78 PAGE 22

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: ENGINE RUNUP 80% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

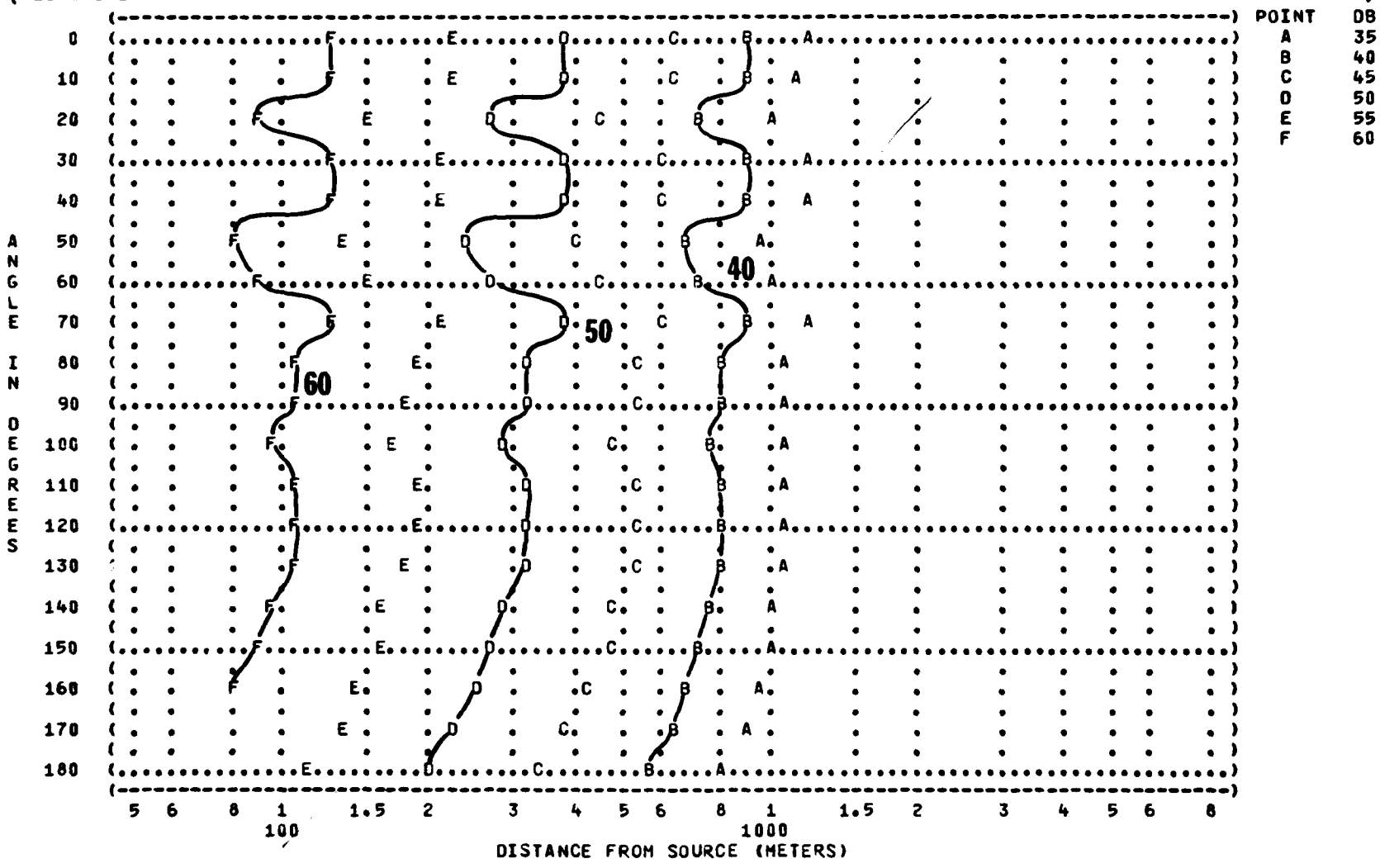


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 23

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60

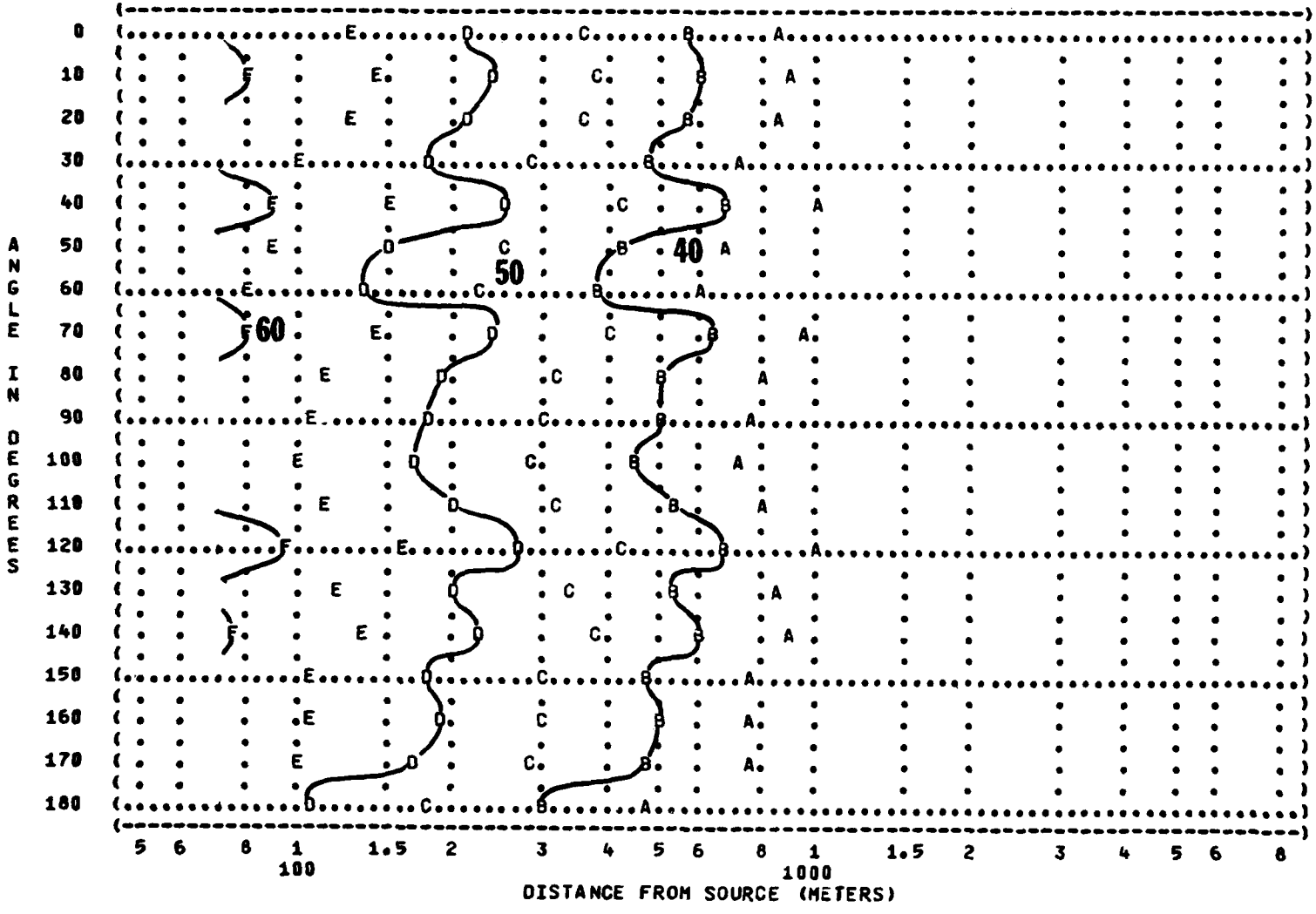


FIGURE: 10

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
2000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 24

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65

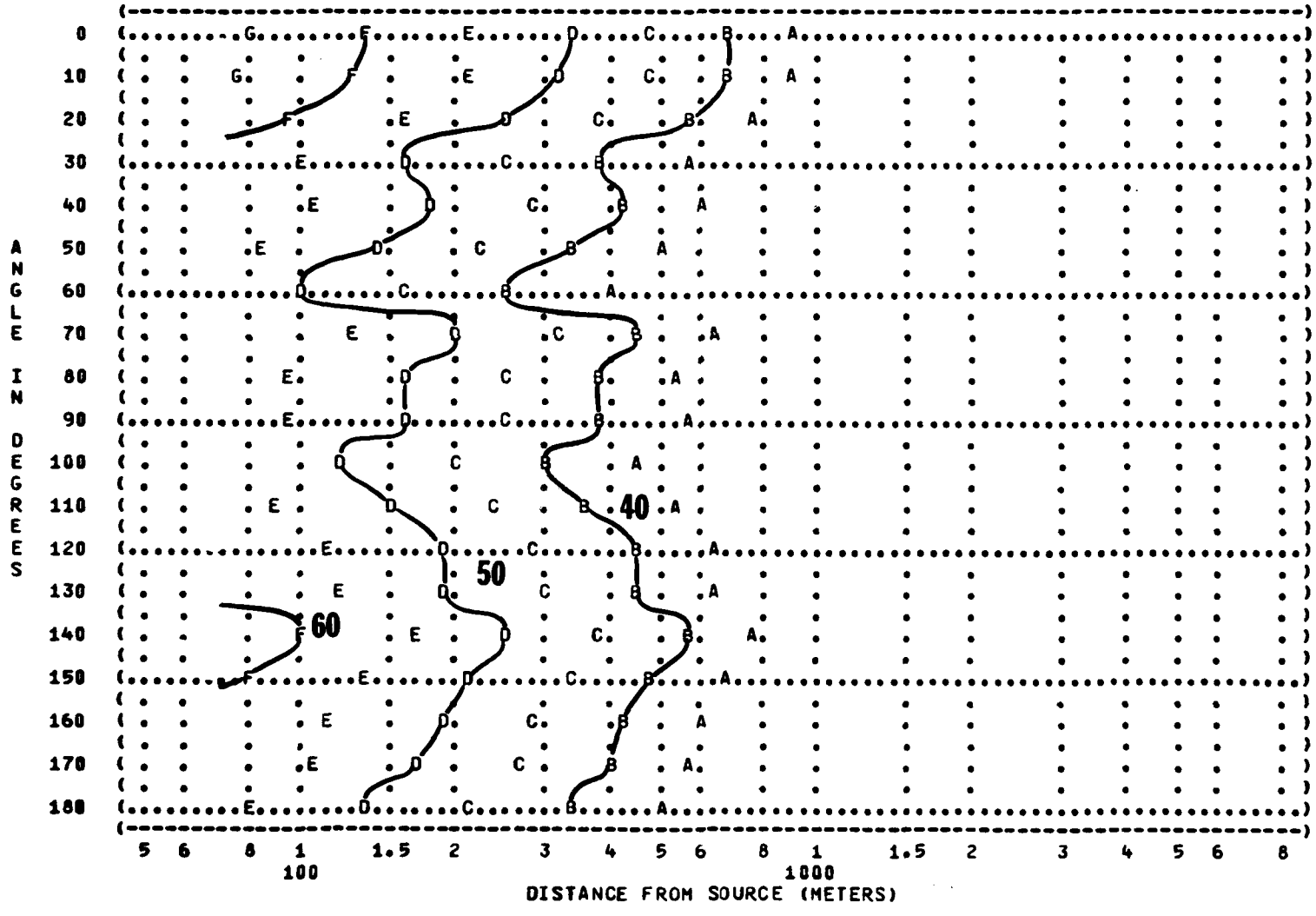


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 01 14 SEP 78 PAGE 25

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: ENGINE RUNUP 80% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65

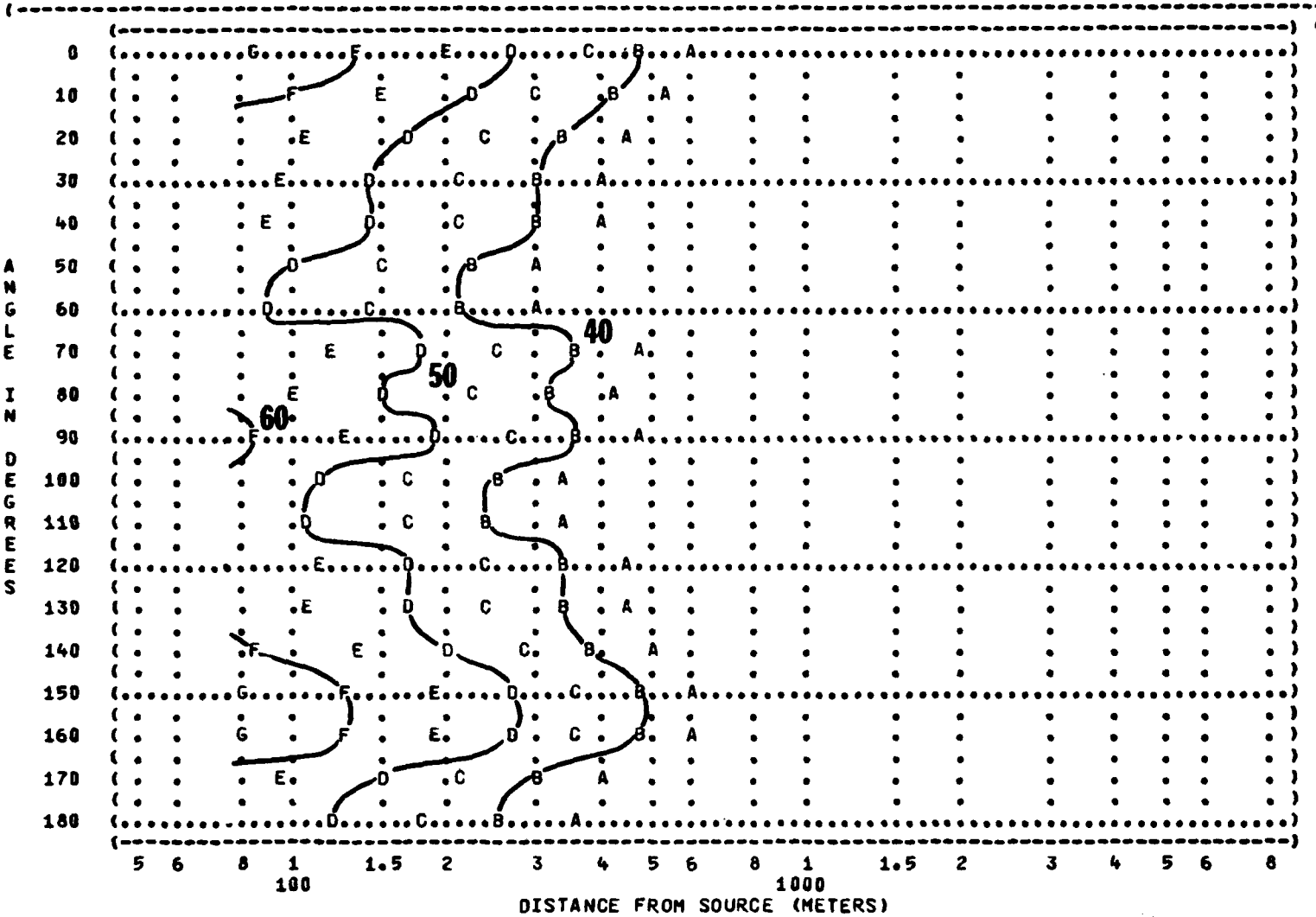


FIGURE: 10

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
8000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 01
14 SEP 78
PAGE 26

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
ENGINE RUNUP 80% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55

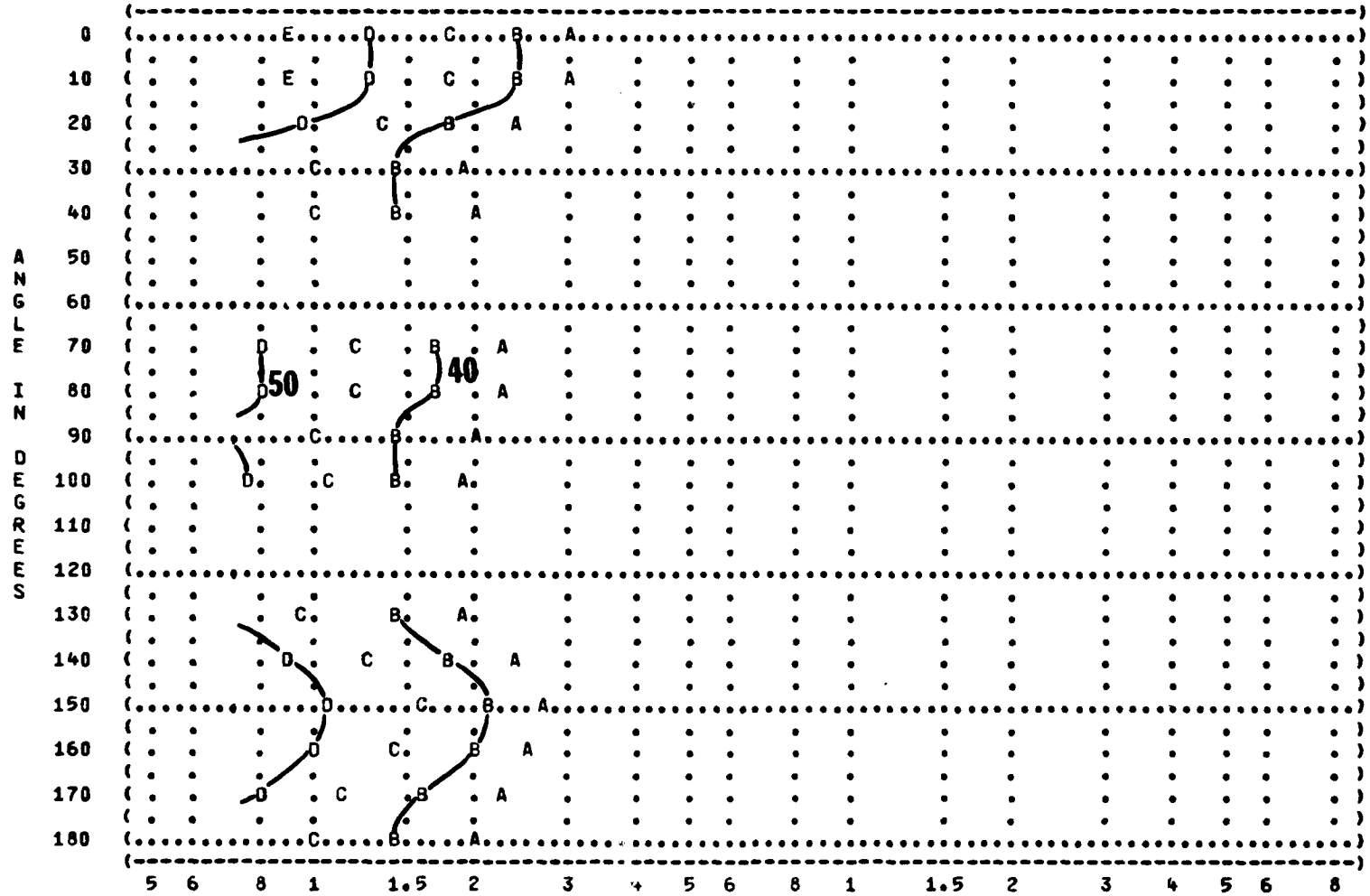


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 18

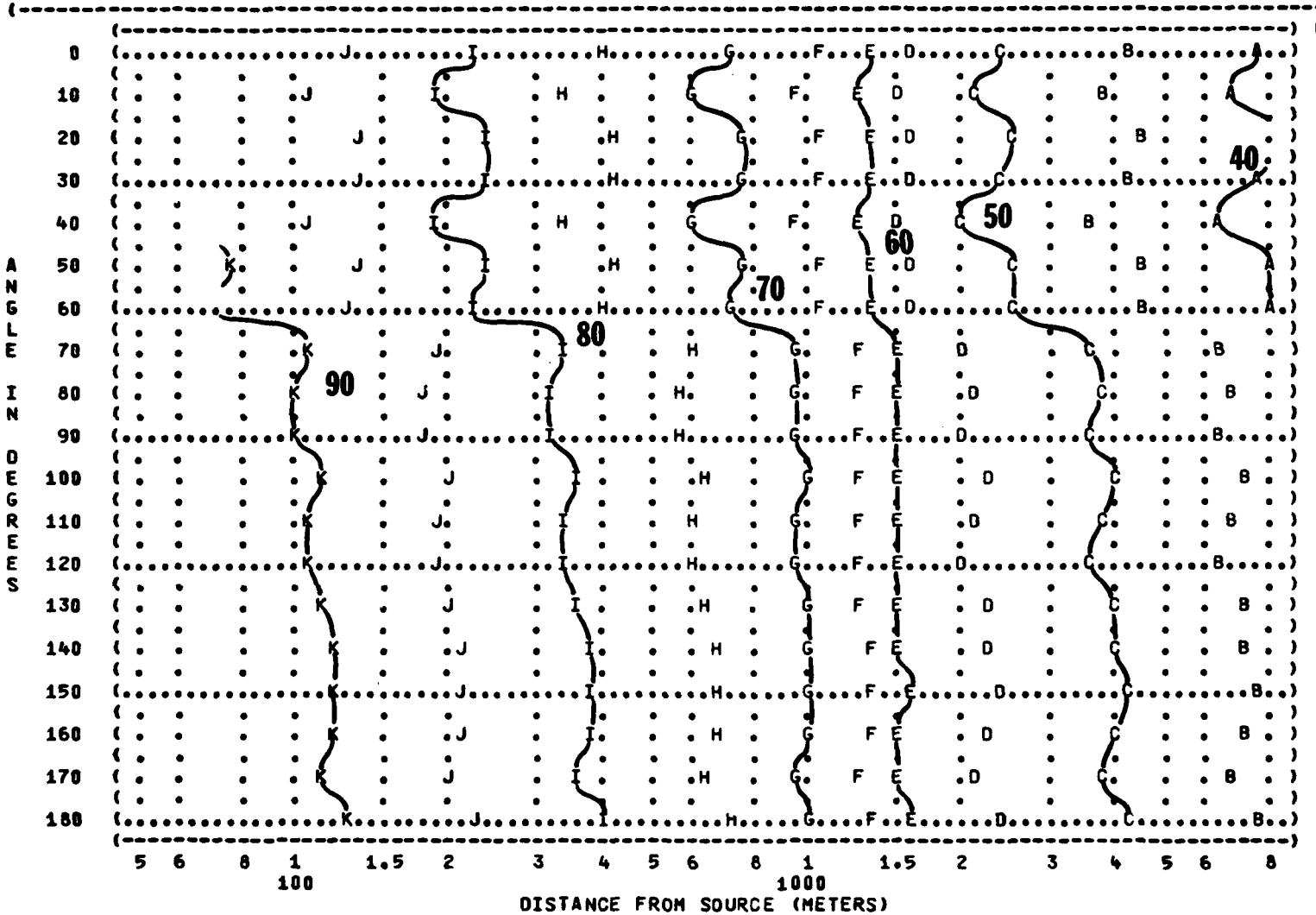


FIGURE: 10

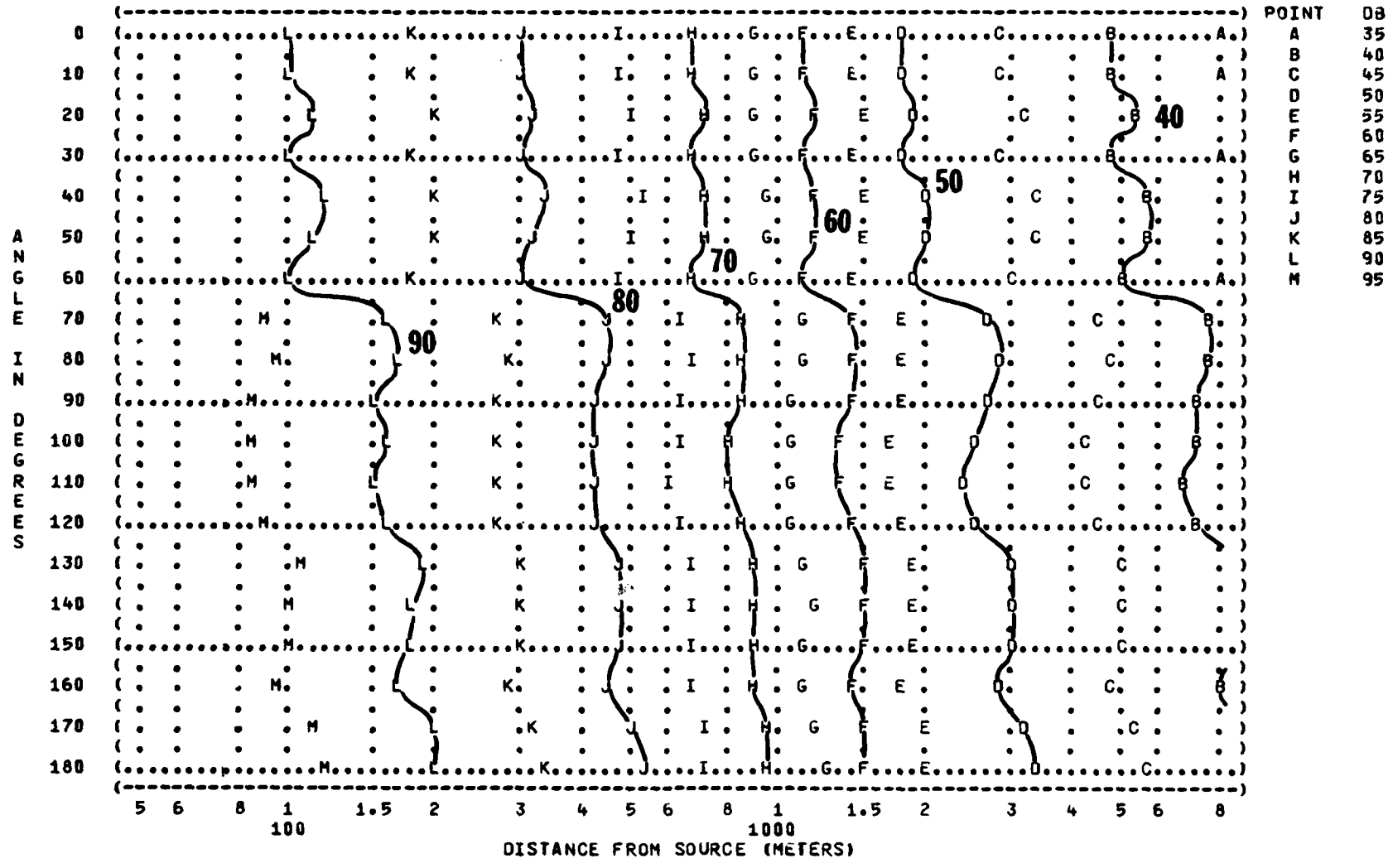
SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
63 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 19

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95

FIGURE: 10

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
125 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 20

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90

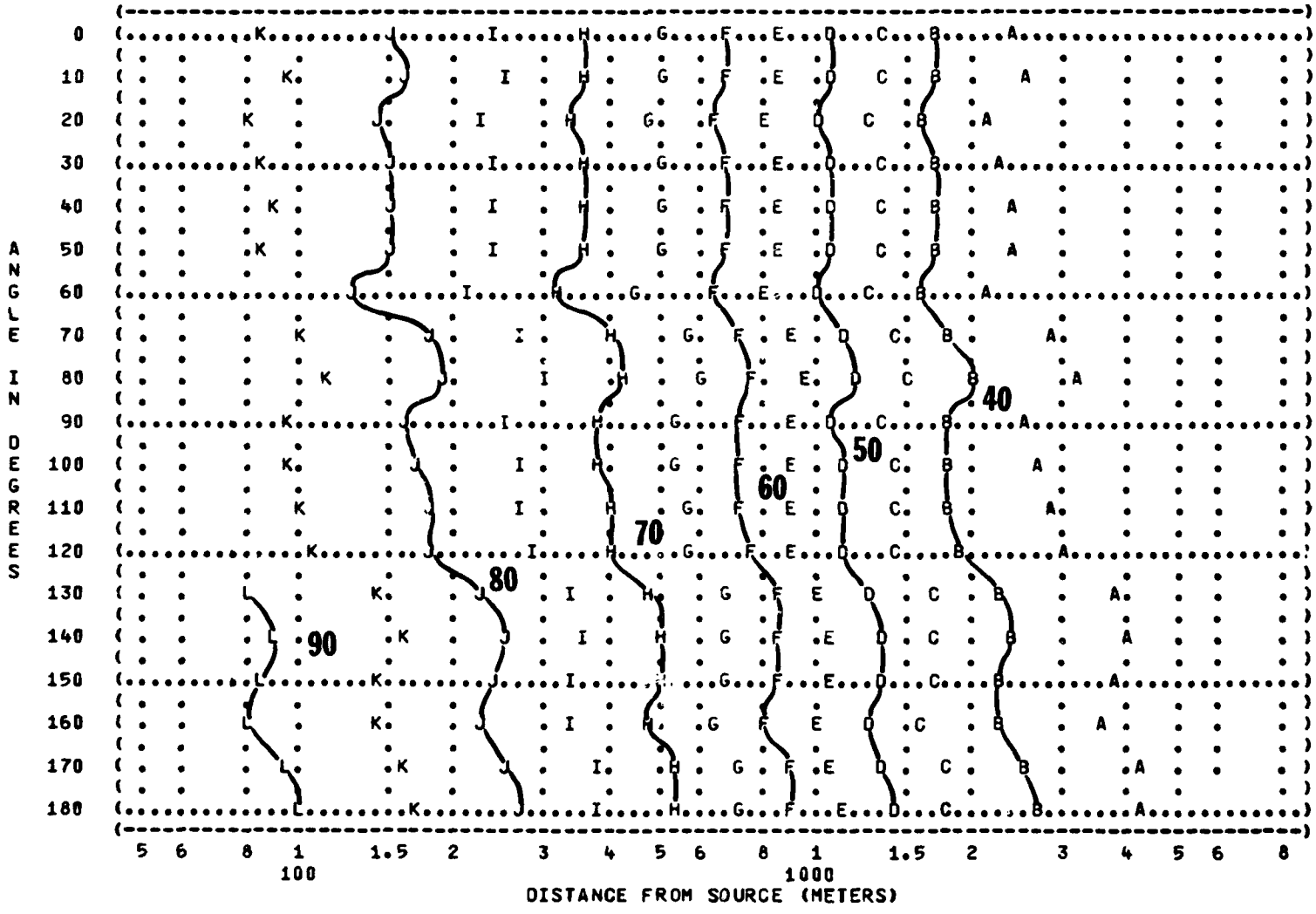


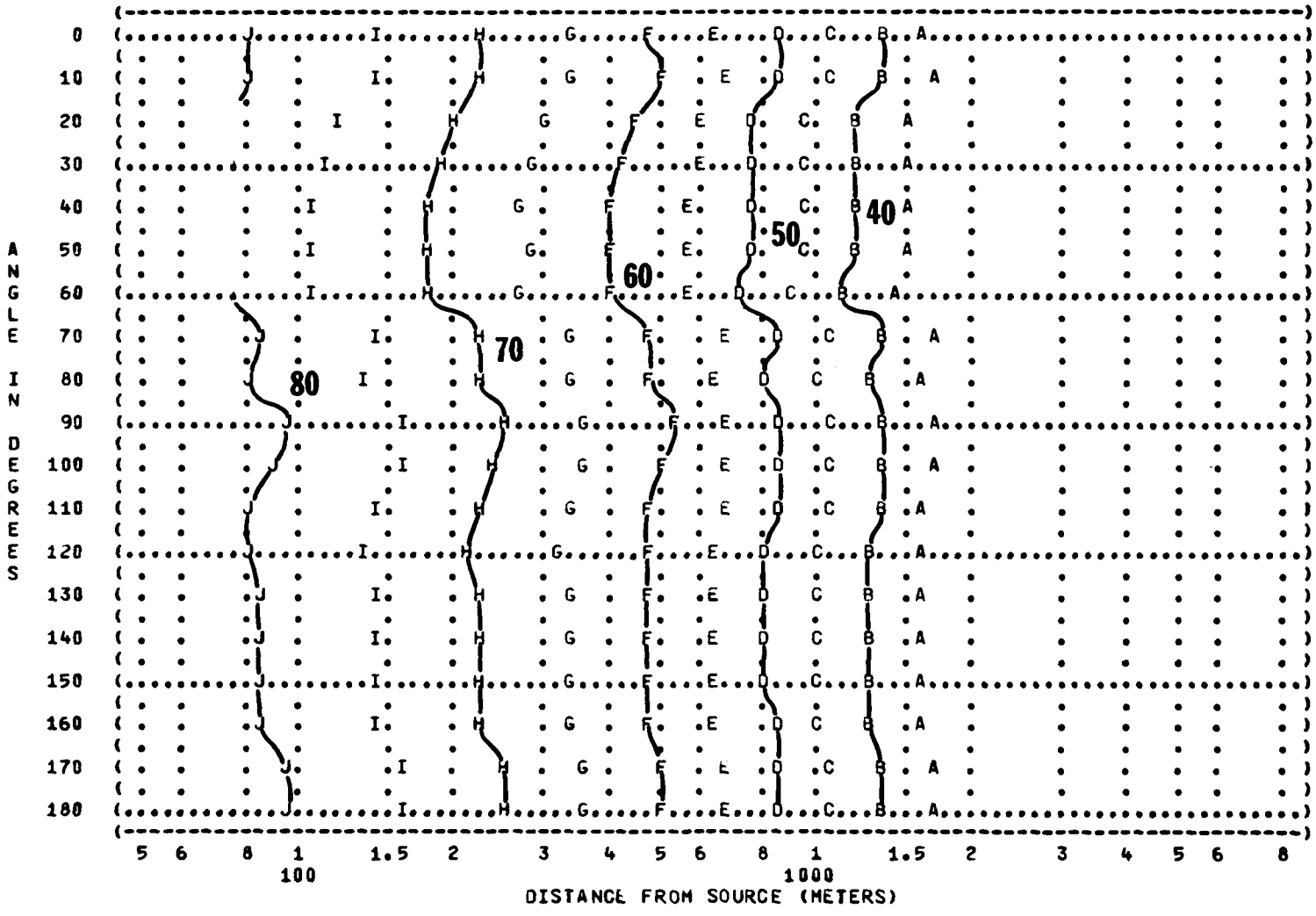
FIGURE 10: SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
250 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 21



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 22

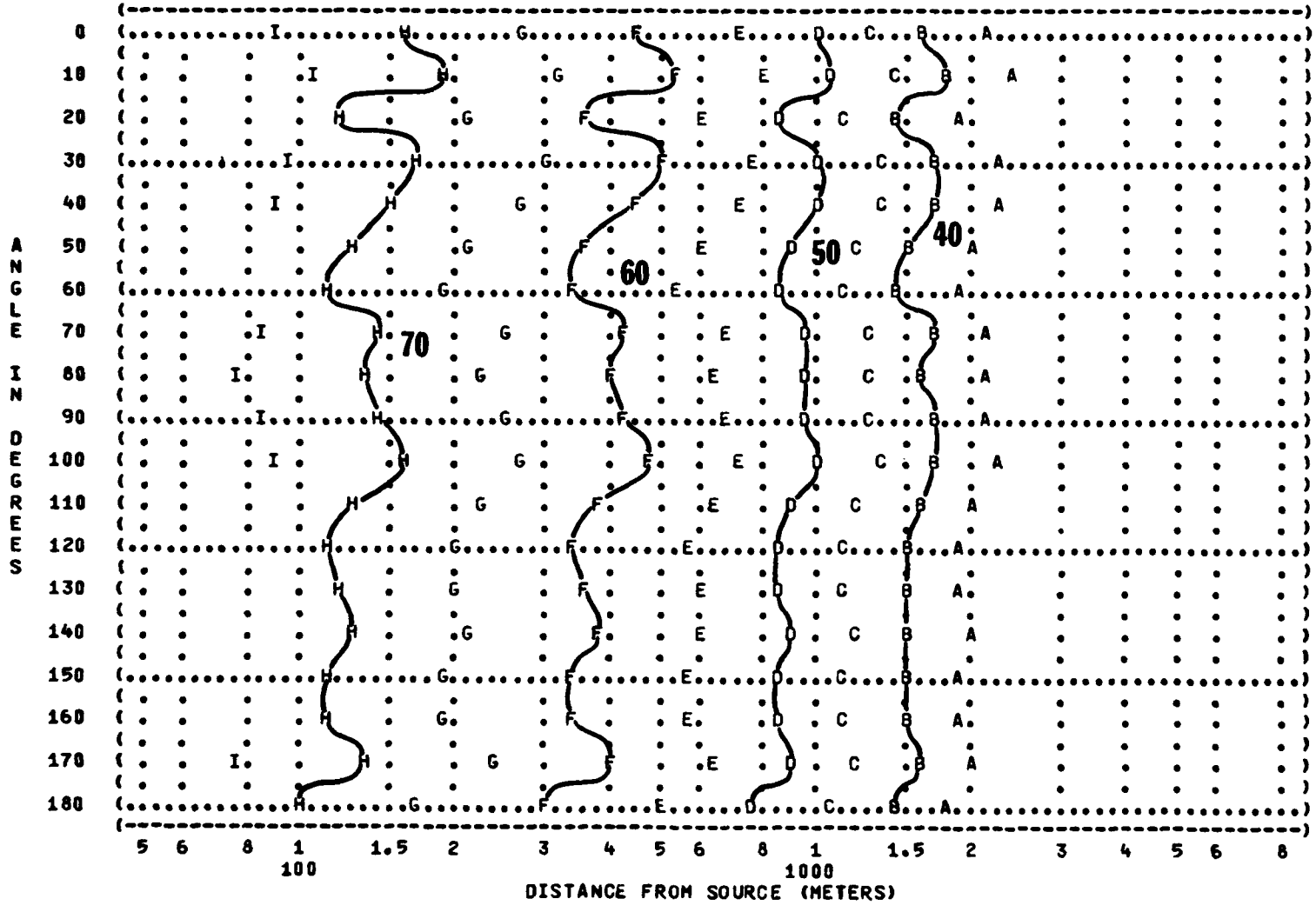


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
14 SEP 78
PAGE 23

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

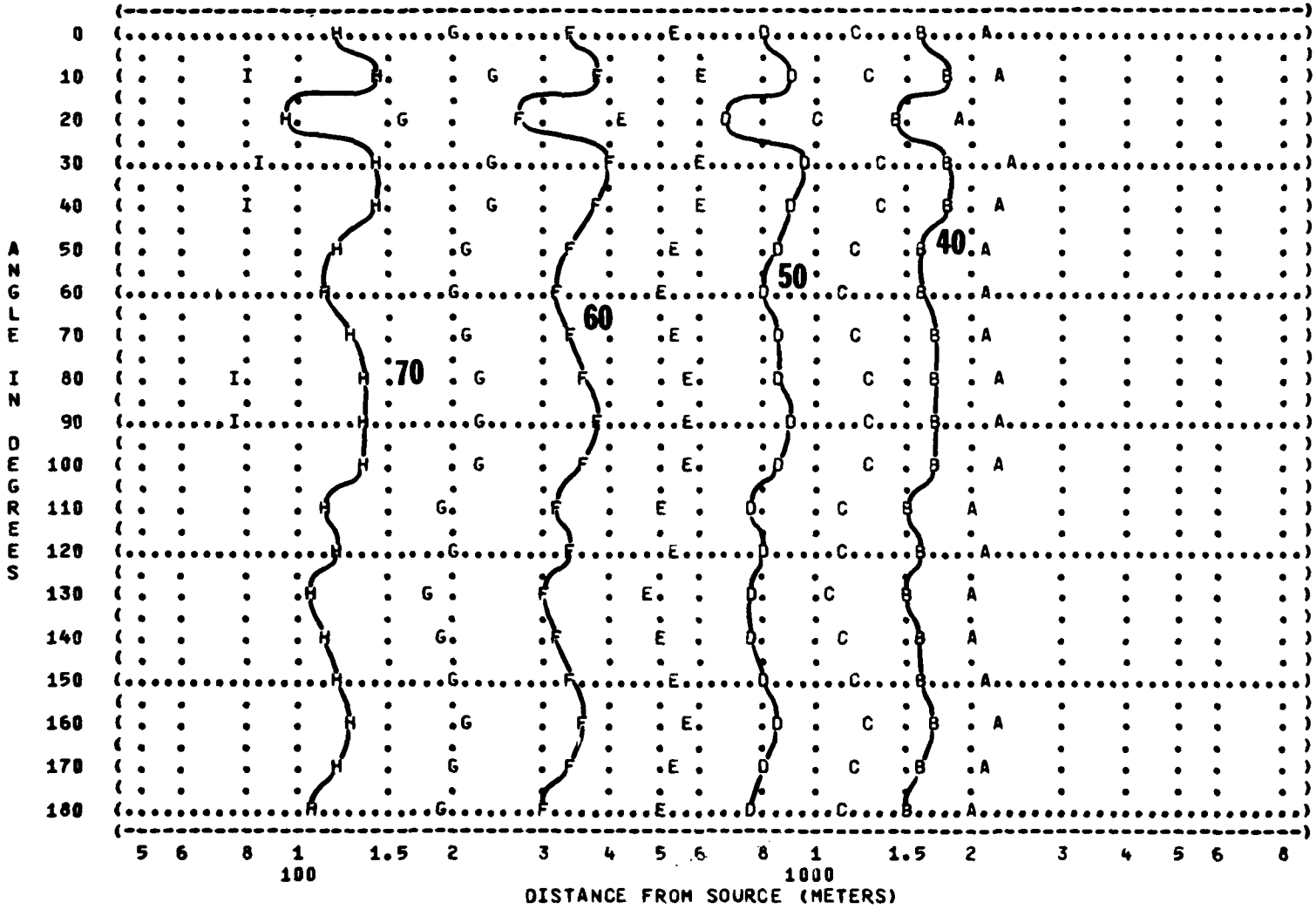


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 02 14 SEP 78 PAGE 24

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: MILITARY POWER 101% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75

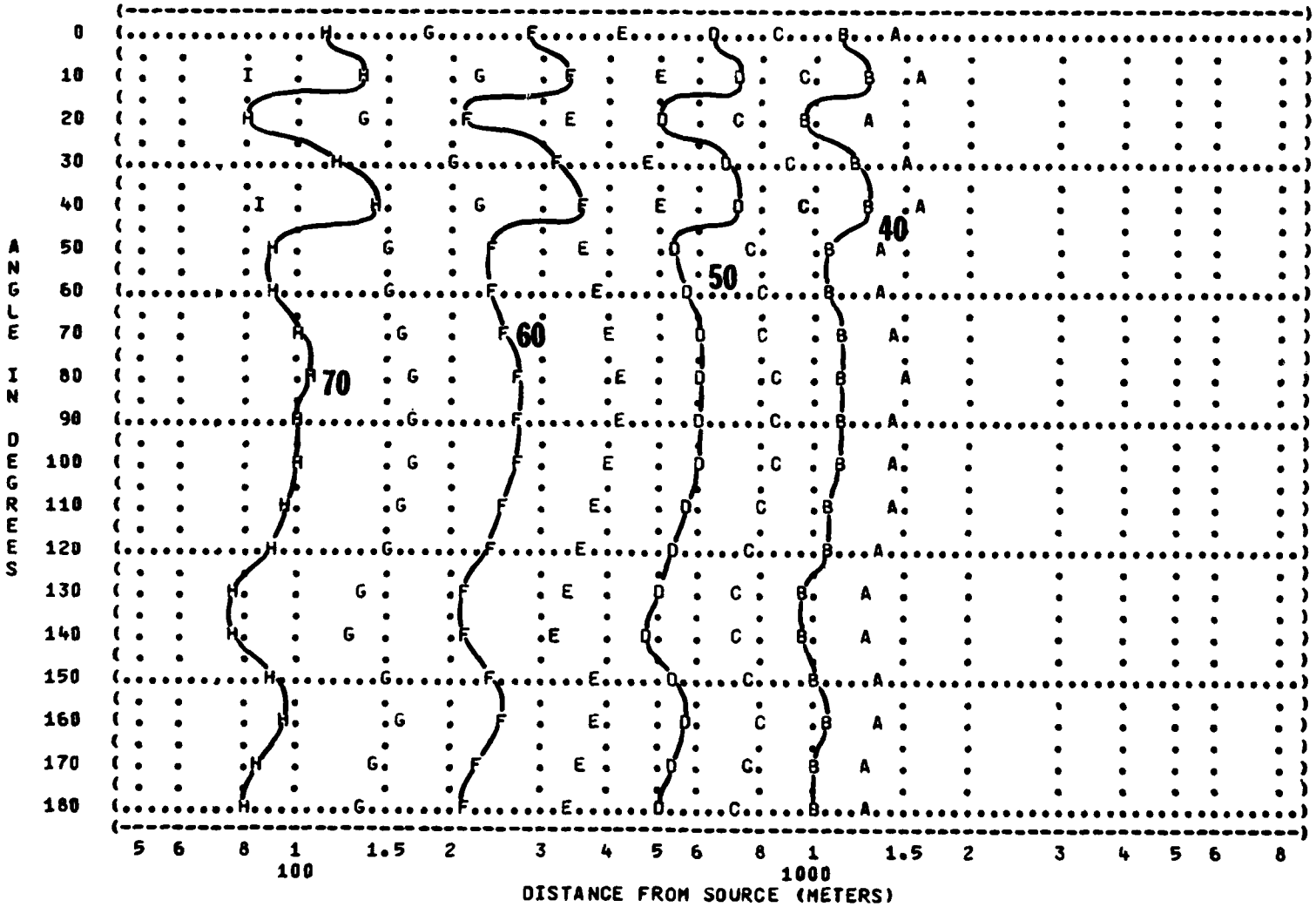


FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 02 14 SEP 78 PAGE 25

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: MILITARY POWER 101% RPM SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

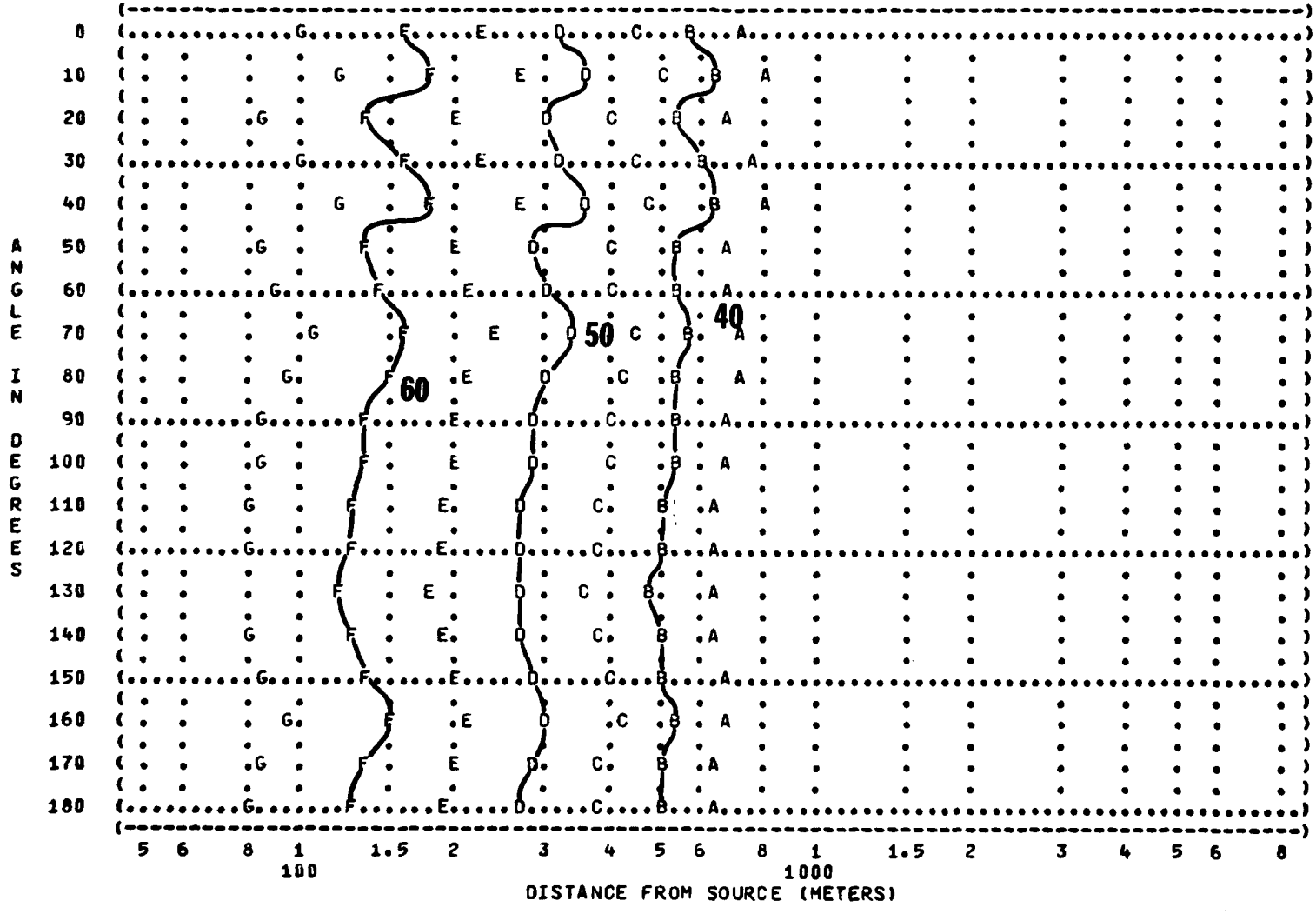


FIGURE: 10

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
MILITARY POWER 101% RPM
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 02
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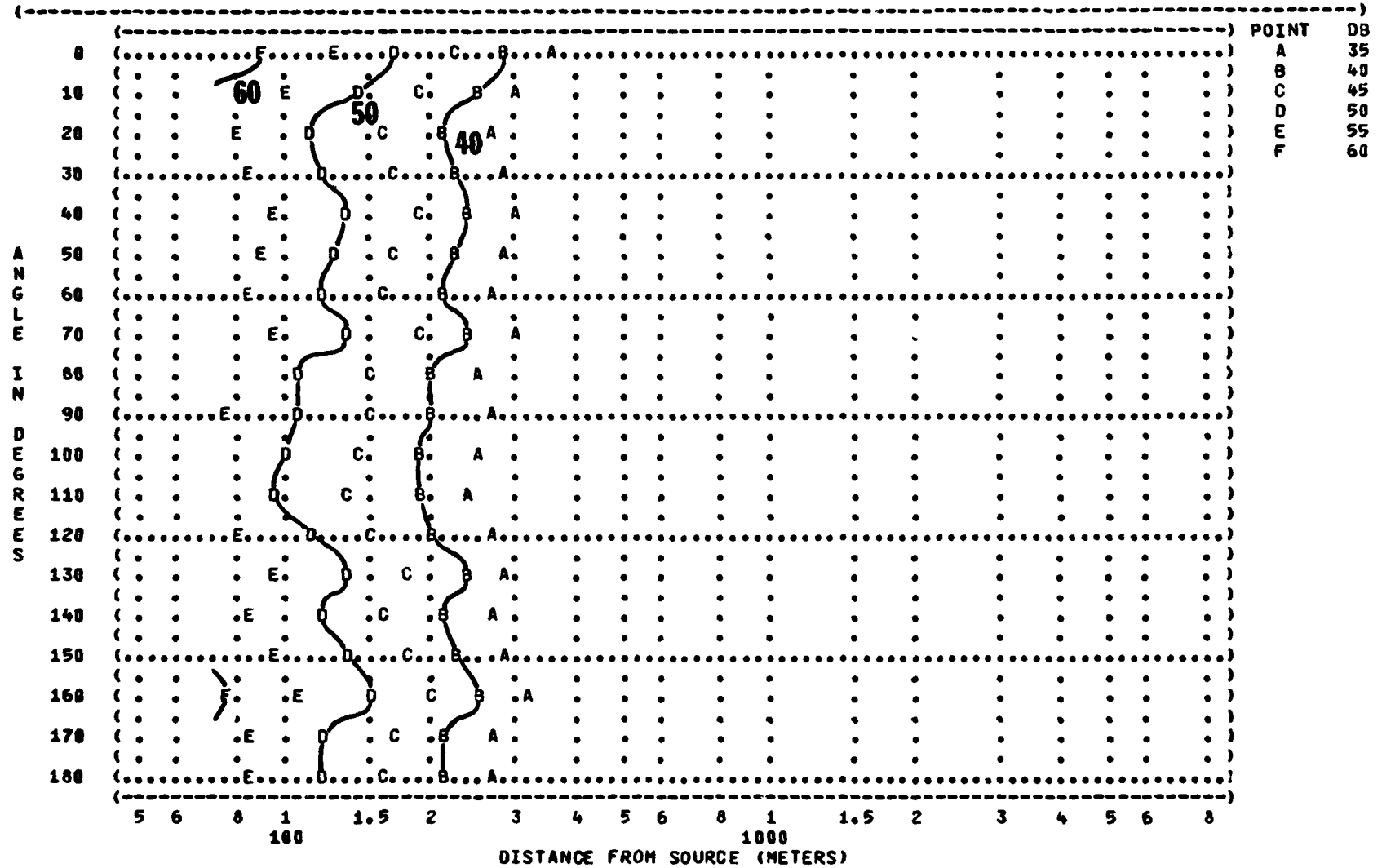

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60

FIGURE 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 31.5 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 03 14 SEP 78 PAGE 18

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: AFTERBURNER POWER SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

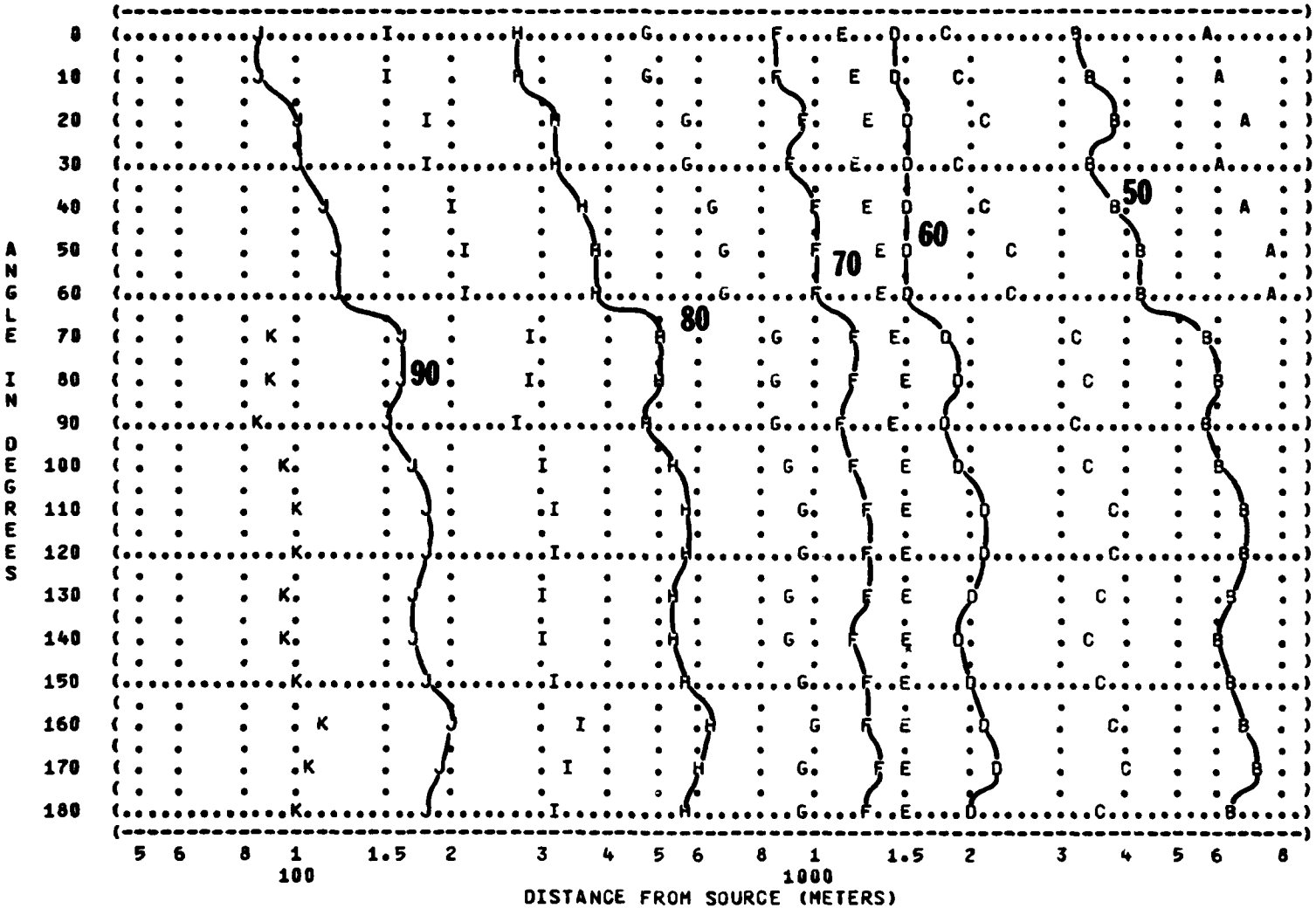

FIGURE: 10

SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)
63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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POINT	DB
A	40
B	45
C	50
D	55
E	60
F	65
G	70
H	75
I	80
J	85
K	90
L	95
M	100

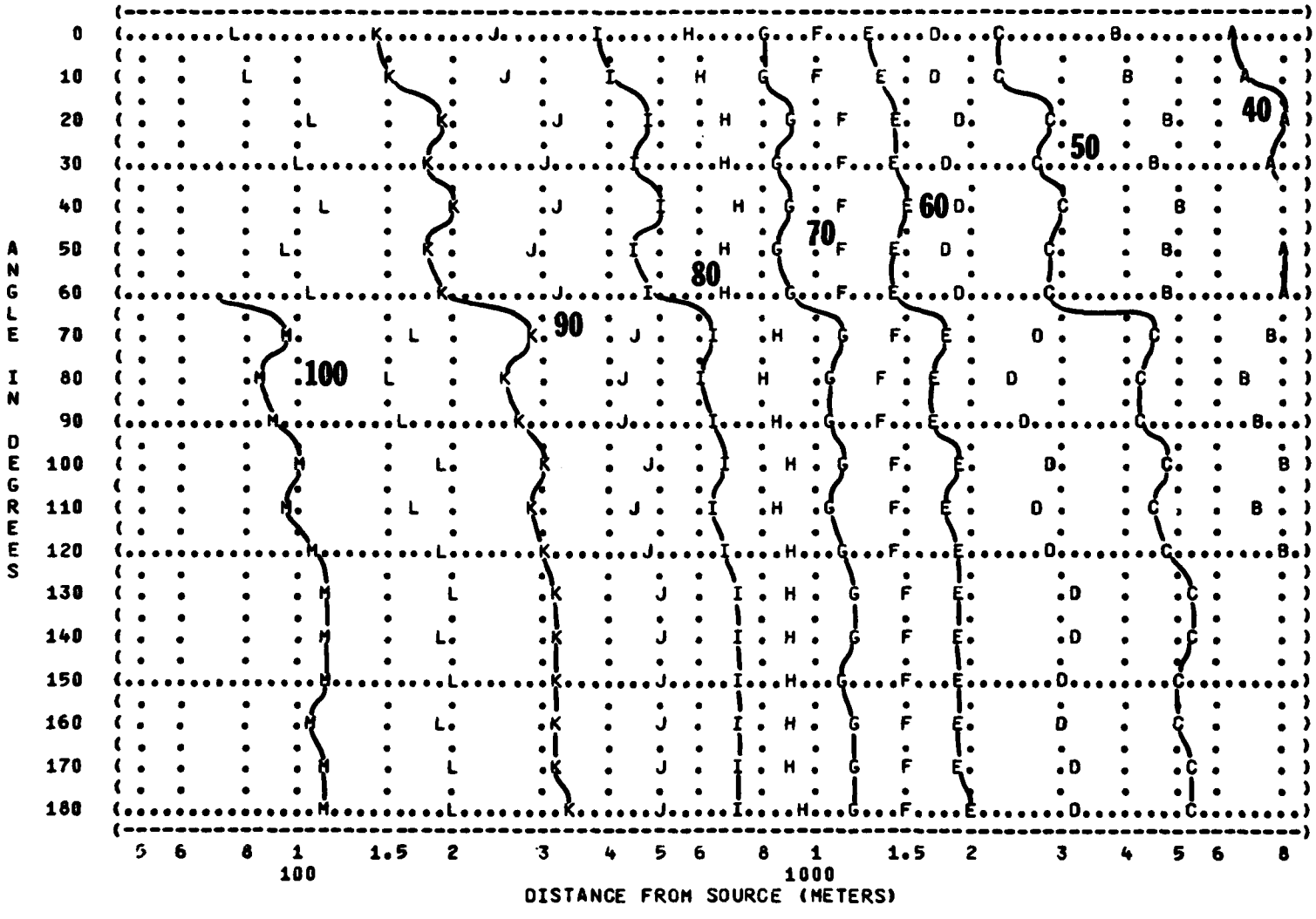

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 125 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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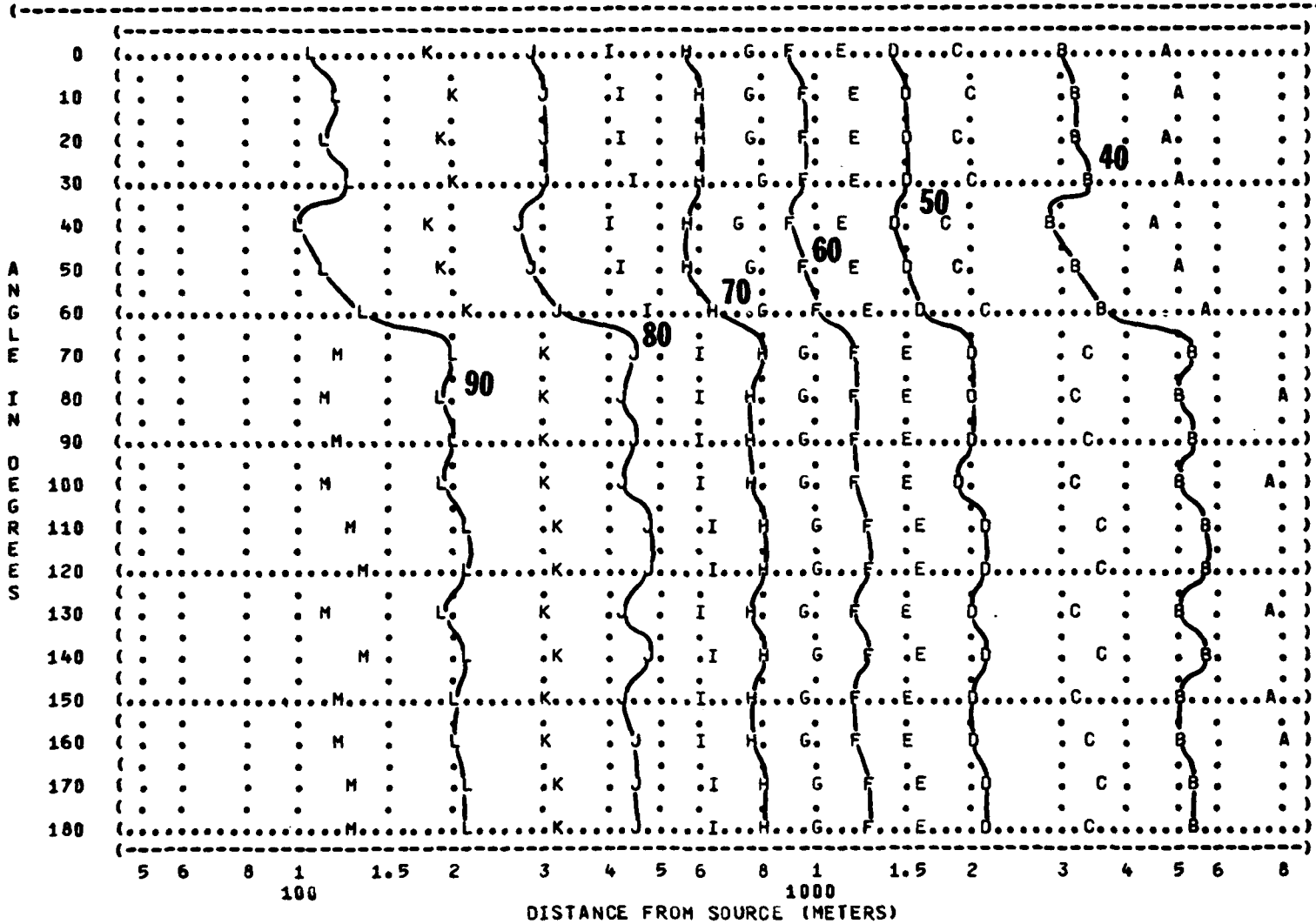

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90
M	95

FIGURE: 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 250 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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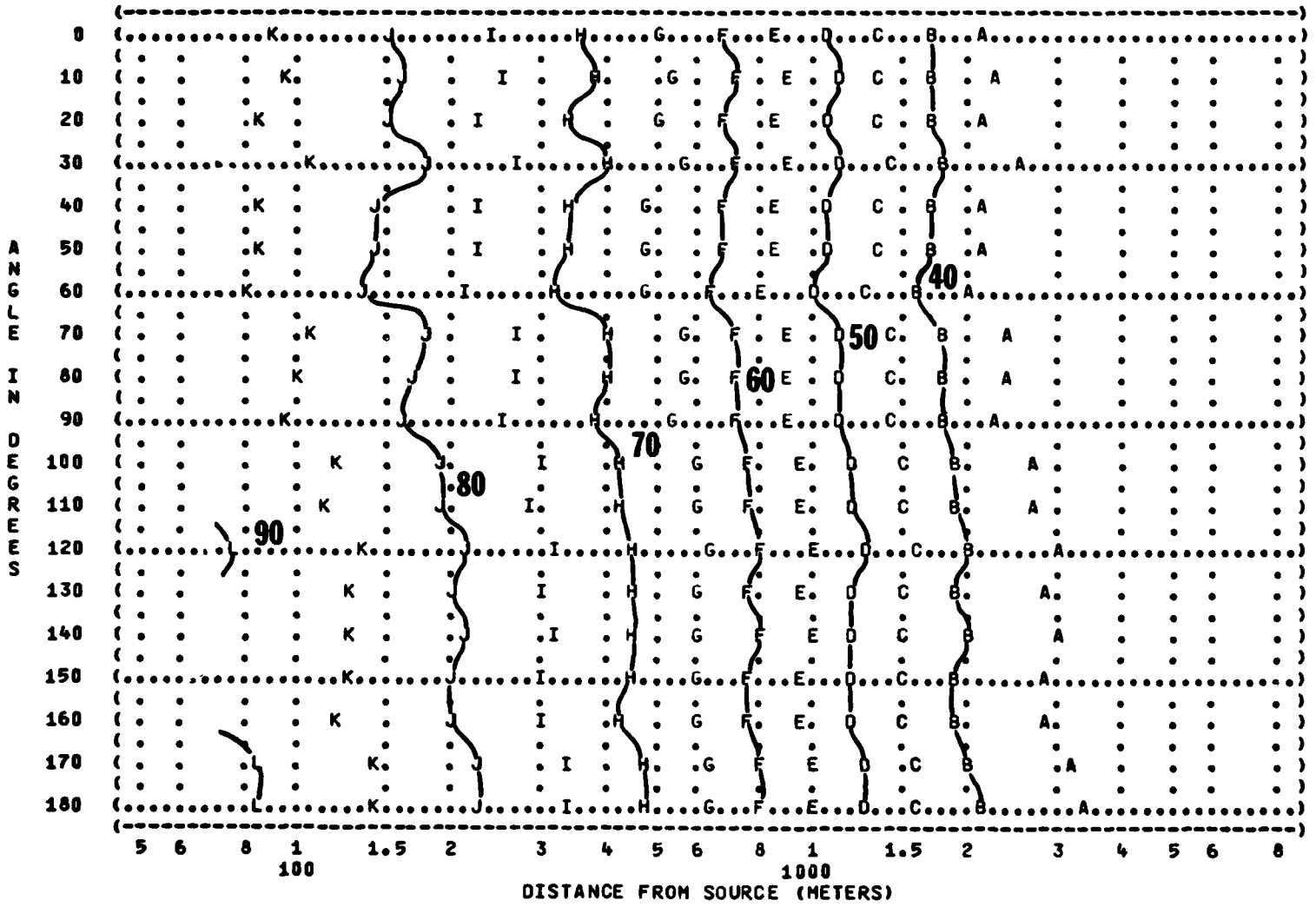
NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80
K	85
L	90

FIGURE 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 500 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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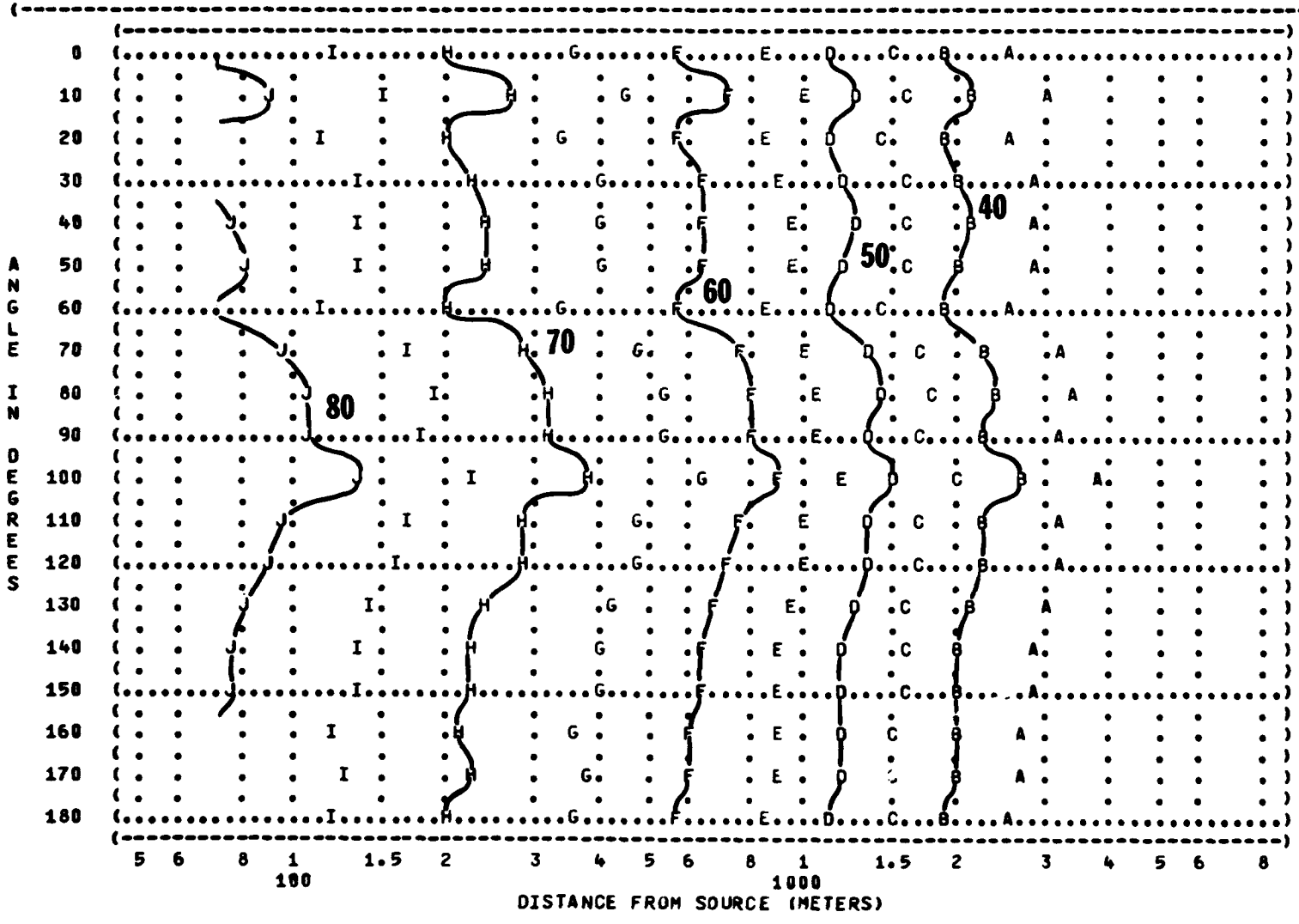
NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80

FIGURE 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 1000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
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POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70
I	75
J	80

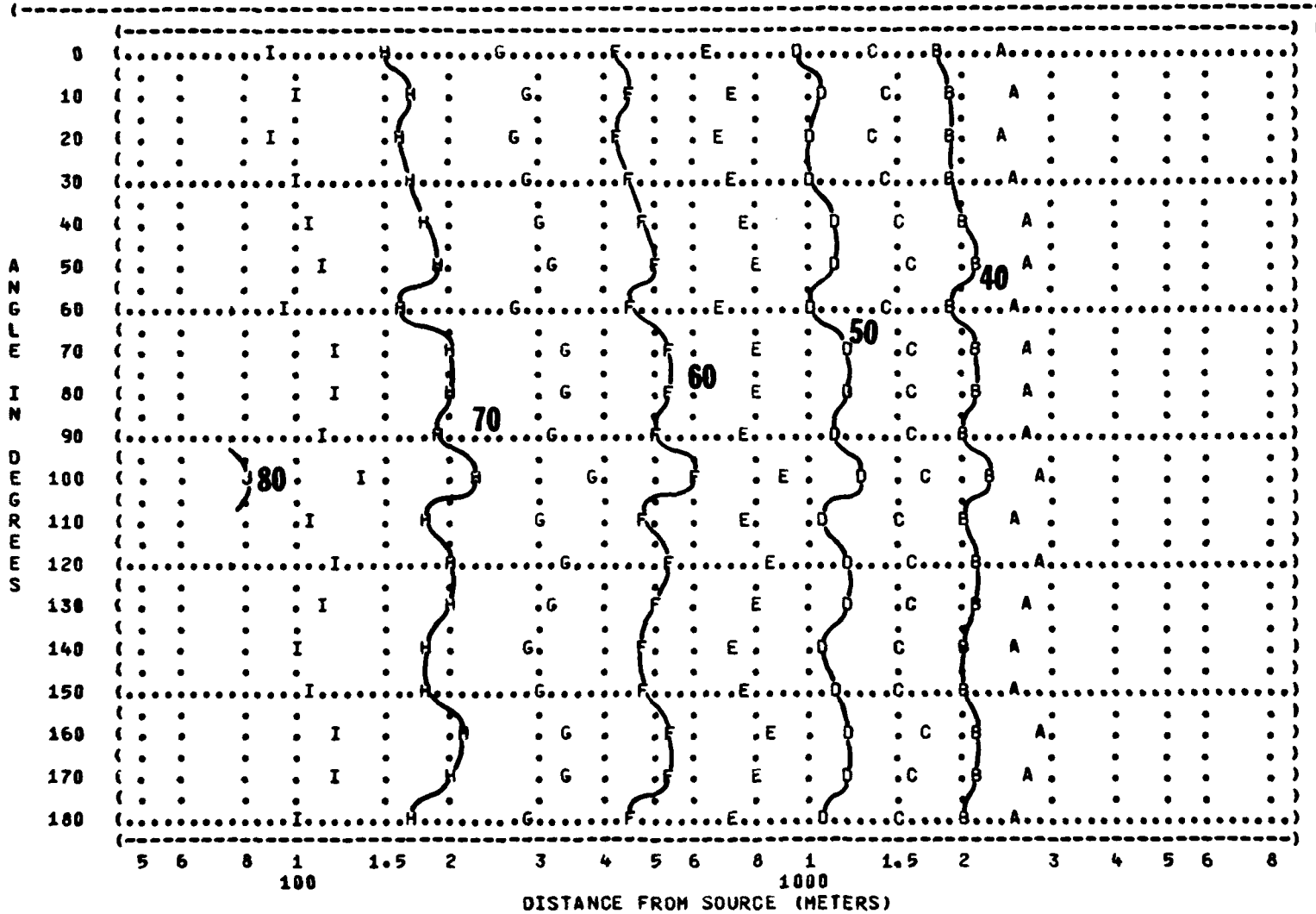

FIGURE 10: SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 2000 HZ OCTAVE BAND

IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 03 14 SEP 78 PAGE 24

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: AFTERBURNER POWER SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

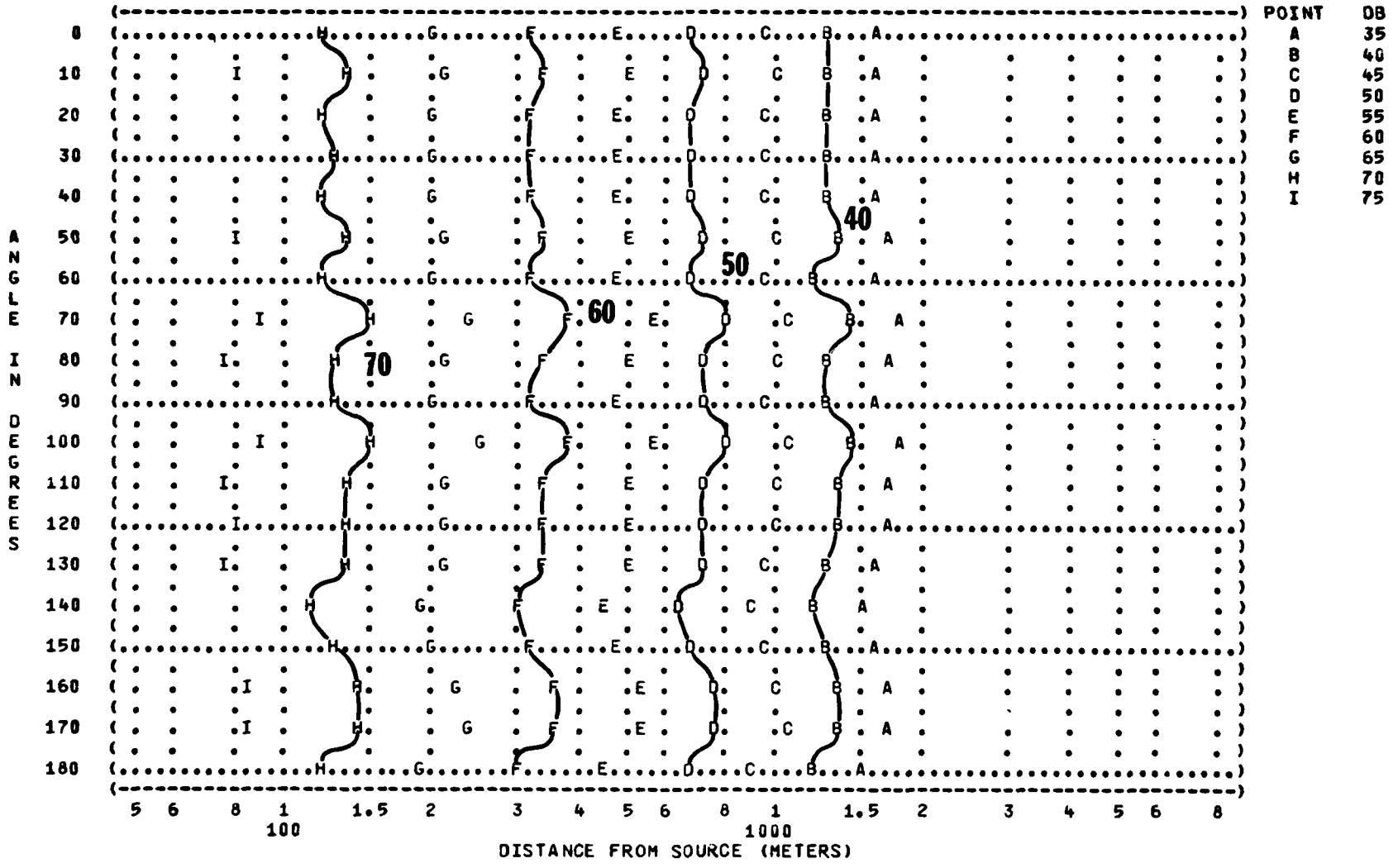

FIGURE: 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 4000 HZ OCTAVE BAND

IDENTIFICATION:
OMEGA 1.4
TEST 77-746-001
RUN 03
14 SEP 78
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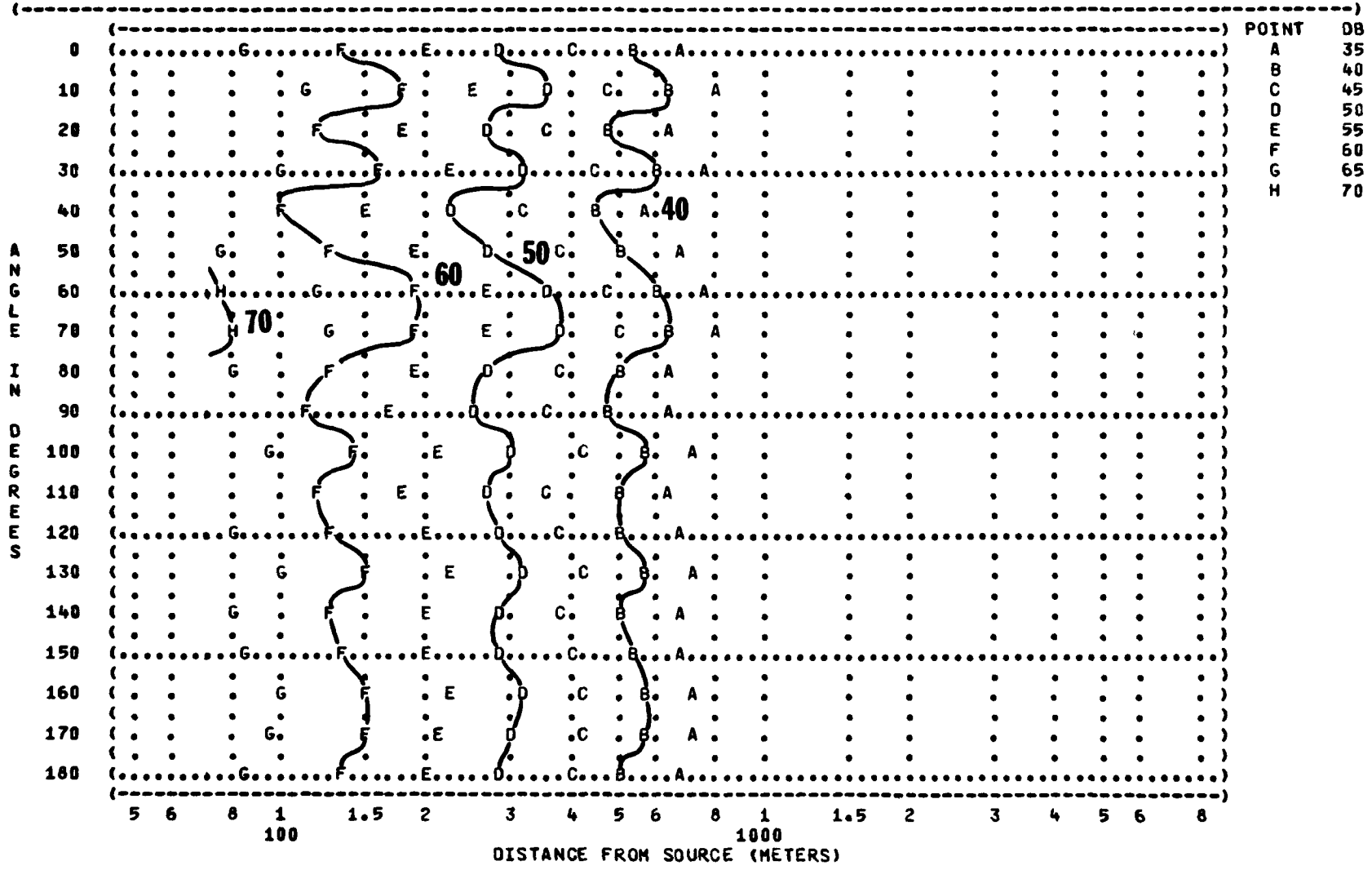
NOISE SOURCE/SUBJECT:
F-5E AIRCRAFT IN THE
AF32A-18 SUPPRESSOR
ENGINE J85-GE-21
FAR FIELD NOISE

OPERATION:
AFTERBURNER POWER
SINGLE ENGINE
GROUND RUNUP (SUPPRESSED)

METEOROLOGY:
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %



POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65
H	70

FIGURE 10 SOUND PRESSURE LEVEL (SPL) EQUAL LEVEL CONTOURS (DB) 8000 HZ OCTAVE BAND

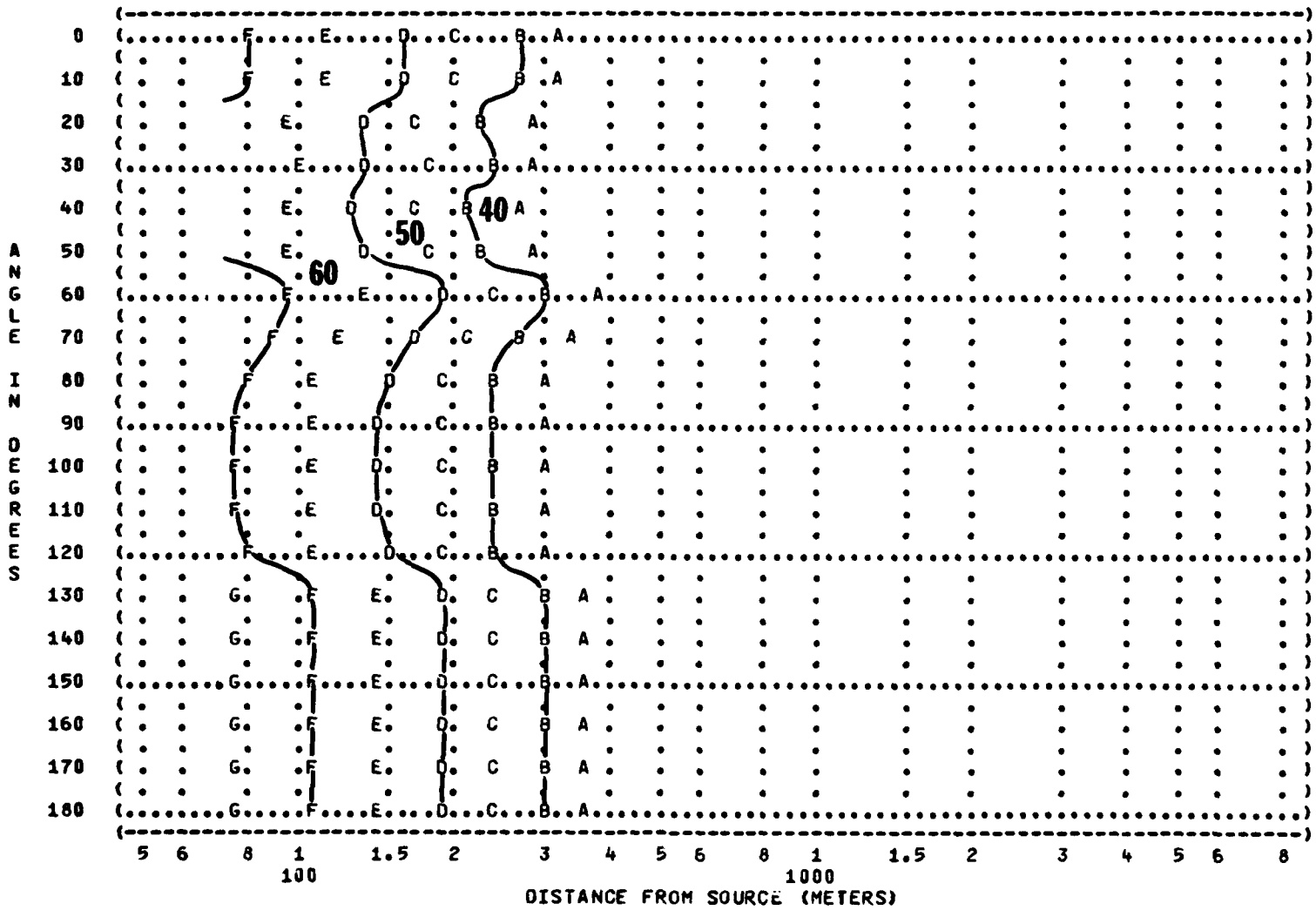
IDENTIFICATION: OMEGA 1.4 TEST 77-746-001 RUN 03 14 SEP 78 PAGE 26

NOISE SOURCE/SUBJECT: F-5E AIRCRAFT IN THE AF32A-18 SUPPRESSOR ENGINE J85-GE-21 FAR FIELD NOISE

OPERATION: AFTERBURNER POWER SINGLE ENGINE GROUND RUNUP (SUPPRESSED)

METEOROLOGY: TEMP = 15 C BAR PRESS = .760 M HG REL HUMID = 70 %

POINT	DB
A	35
B	40
C	45
D	50
E	55
F	60
G	65



*U.S.Government Printing Office: 1979 — 657-084/296